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SECTION I: FRAMINGHAM, THE TOWN

1.0 INTRODUCTION TO FRAMINGHAM

The Town of Framingham was founded as Danforth Farms in 1662 and incorporated as a town in 1700. From a stop halfway along the main route from Boston to Worcester, it became a center of commercial, industrial, and financial activities for the MetroWest region. Its strategic location, which provides excellent access to the state's major transportation routes, makes it a desirable location for new business and residents alike.

Framingham is a Town of distinctly contrasting land use patterns. Of the total 16,848 acres, about 54 percent are developed for a variety of residential, commercial and industrial uses; 46 percent are undeveloped - including open space and other nondevelopable areas.

For the Master Plan, the most significant general observation about Framingham is that most of the Town is already developed. The exception is the "Northwest Quadrant" -- the area west of Edgell Road and north of the Mass Pike. Therefore, major changes in Framingham can occur in only two ways: by development in the Northwest Quadrant, and by redevelopment in certain other critical areas. These critical areas, identified as those subject to change, are the Golden Triangle, Downtown Framingham, Framingham Center, Saxonville, and Nobscot. The land use policies which the Town adopts for development and change in these critical areas are those which will impact the Town's future.

The Town's land use patterns have been determined by its natural features, and particularly during the 19th and 20th centuries, by changing economic and transportation factors. Saxonville, on the Sudbury River and the oldest of the Town's settlements, developed in the first half of the 19th century as a textile industry center based on river power. Additional developments occurred in Framingham Center, as a stopping point on the Worcester Toll Road (Route 9) and later on Route 135. The Boston and Maine Railroad in South Framingham led to the establishment of industrial areas and related residential and commercial development in Downtown.

Trends since the Post World War II period have had major influences on the Town. National policies to encourage suburban residential and highway development led to construction of the Mass Turnpike, with two interchanges in Framingham and extensive suburbanization during the 1950's and 1960's. Industrial and commercial growth concentrated around the Pike interchanges and along Route 9, and numerous apartments were built in the Route 9 Corridor.

By the late 1980's, the development pattern is predominantly suburban except for the Northwest Quadrant. Commercial centers are located in Framingham Center, Saxonville, Nobscot and Downtown; and industrial areas in the south. Route 9 is bordered by an intensely developed commercial corridor, focused on the Golden Triangle. Intensive development is continuing to occur at the Mass Pike interchanges.

The Northwest Quadrant is the area where most of the Town's open and remains. Suburbanization has not yet occurred there because natural features make development expensive, and most of the area is zoned for one acre lots. Recently, however, development has begun; high home prices have made development feasible.

As mentioned, the Town of Framingham has experienced a noticeable commercial and residential growth since 1950. A small town of 28,000 in 1950, Framingham grew to 44,000 by 1960 and increased to 64,080 in 1970 and 65,000 in 1980. By 1985, the population began to decrease to 61,000, an indication that the Town has reached the stability of a mature settlement.

The rapid growth experienced in the 1950's and 1960's was, to a large degree, the result of a new transportation corridor that was opened as the Massachusetts Turnpike was completed linking the western part of the state to Route 128 and Boston. Shopper's World, one of the first shopping centers in the country, was built in the Golden Triangle and other malls were built along Route 9. Industry settled in the greater Framingham area. Ideally situated at the intersection of a network of road systems- Routes 9 and 30, and the Turnpike, Framingham expanded into a retail, commercial, and industrial center.

Extensive office and retail growth has taken place along Route 9 and 30, especially near the two Massachusetts Turnpike interchanges (Exits 12 and 13). Initially, the retail sector was the faster-growing: between 1963 and 1972 the number of retail establishments in the Town increased by 35 percent (from 443 to 597) and the volume of sales increased by 88 percent. During the 1970's, however, the office sector began to grow rapidly; and since 1976 over twenty major projects have been developed, representing 2.9 million square feet of office space.

The number of housing units has doubled and the number of rental units tripled since 1950 with building booms in the 1960's and early 1970's. Until 1965, new housing construction was predominantly single family homes. In 1965 more apartment units were built than homes. The strain on existing services, including roads, sewers, and water mains, was apparent. Route 9 and 30 experienced significant traffic congestion. In order to curb the growth rate, all apartment zones were removed from the Town's Zoning By-Law in 1972. The moratorium still remains in force.

Framingham has become a complex community, with services oriented to its local needs as well as increasingly taking over the role of urban center of Metro-West - a region of eight municipalities along the Route 9 Corridor.

2.0 REGIONAL CONTEXT: METROWEST

Framingham is at the center of what has come to be known as "Metrowest". Metrowest contains eight communities along the Mass Pike - Route 9 corridor, from Route 128 to Route 495: Weston, Wellesley, Wayland, Natick, Sudbury, Framingham, Southborough, and Ashland.

Metrowest's identity is based on growth and development, which in turn is derived from major access to roadways and its location midway between Boston and Worcester. While some Metrowest communities have experienced more growth and development than others, the impacts of growth have been felt by each of them. These impacts are primarily due to more traffic, and increased demands on water supplies, waste disposal, and sewerage systems.

Metrowest faces the prospect of continued growth. If development patterns of the past continue, growth and development impacts will become increasingly serious. While population is expected to increase only slightly (by 2 percent between 1980 and 1990), residential development will continue. Employment will grow at a much higher rate than population (by 12 percent), generating additional commercial and industrial construction, and more traffic.

Metrowest is becoming increasingly independent from Boston, and Framingham is becoming its regional center. Not only is the Town at the area's geographic center, but it also is its economic and service center:

- Framingham contained 44% of Metrowest's 1985 employment
- The region's major employers, such as General Motors, Dennison, and Shopper's World, are in Framingham
- Route 9 in Framingham/Natick is the region's shopping center, with some 4,200,000 square feet of retail space in the Golden Triangle.
- The Framingham Union Hospital and associated offices and medical facilities, form the region's medical center.
- Framingham State College serves many Metrowest students.

Consistent with its role as a regional center, Framingham has developed urban characteristics and has:

- the largest population of the eight Metrowest towns
- the highest density population
- the highest percentage of low income persons
- the highest percentage of multi-family housing

Policies of surrounding communities have generally prohibited significant amounts of higher density housing, while Framingham's have permitted it. Multi-family development was allowed, and occurred extensively until 1972 when the Town put a halt to it; 2 family dwellings are still allowed by special permit in some districts, and the town has developed subsidized multi-family housing.

The outlook is for Framingham to continue to dominate Metrowest, even as the region itself continues to grow. The Town's employment is expected to grow the most of the eight communities. The amount of proposed development (planned and in process) is far greater than the other towns. For example, the MAPC projected 3.8 million square feet of new development for Framingham; 1.3 million square feet for Natick; and 6.3 million square feet for the entire region.

Among the implications:

- Traffic and other development impacts of growth in Framingham will become more and more serious, especially as development continues to be exclusively auto-oriented.
- Growth in surrounding towns - particularly residential growth in Ashland -- will affect Framingham, due to increasing through traffic on Framingham roads.
- Pressures in Framingham's rental housing will continue to be strong.
- Residential development will continue, threatening now rural areas of town.

Regional, as well as local, solutions will be needed to address these issues. While comprehensive planning, zoning bylaw changes, private and public development of affordable housing and road improvements can be done at the local level, a regional approach is needed to address the many inter community problems. The regional planning agency in Metrowest provides such a mechanism.

3.0 LAND USE

The land use patterns of Framingham's 16,648 acres (approximately 25,65 square miles excluding water bodies) have been established by historical trends and natural features, as mentioned before, and are characterized today by suburbanization and strip development. A summary of Framingham's total acreage, defined by land use categories, is presented in Table 1,

TABLE 1: LAND USE IN FRAMINGHAM

LAND USE	AREA (acres)	PERCENT OF TOTAL LAND AREA
Urban		
Industrial	602	3.6%
Commercial	866	5.1%
Dense Residential	946	5.6%
Medium Density Residential	4,556	27.0%
Low-Density Residential	951	5.7%
Transportation	374	2.2%
Urban Open (Vacant ~ Public)	722	4.3%
URBAN TOTAL	9,017	53.5%
Forest	4,740	28.1%
Wetland	1,309	7.8%
Agriculture	974	5.8%
Outdoor Recreation	418	2.5%
Mining and Waste Disposal	120	0.7%
Open	270	1.6%
ACREAGE TOTAL	16,848	100%

Source: Metropolitan Area Planning Council Land Use Study, 1985

The Town's high density residential, commercial and industrial areas have developed at or near major transportation nodes. Framingham Southeast and South Side districts proximity to the rail line and historic toll road (Route 135) made them areas of intense development for many decades. Framingham also contains undeveloped, rural tracts of land: these scattered areas were less accessible to transportation routes and, in general, had ground conditions unsuitable for building (steep slopes, wetlands, ledge, etc.) Generalized land use patterns show that virtually all of the non-urban land uses (conservation and rural residential) occur in the Northwest of the Town, while high density urban uses occur in the eastern and southern sectors and along the transportation corridors of Routes 9 and 30.

3.1 Commercial and Industrial Land Use

Although less than 8 percent of Framingham's total land area is devoted to these uses, Framingham is a regional economic and service center. The Town has two major retail centers. The "Golden Triangle", along Routes 9 and 30 between Route 126 in Framingham and Speen Street in Natick, is New England's second largest retail center, in volume of sales. The central business district (CBD), in South Framingham, is a center for governmental, medical

and professional services as well as for retail trade, which lost the retail dominance it once had to the Golden Triangle.

The two Massachusetts Turnpike Interchanges at Framingham's western and eastern boundaries has fostered the development of light manufacturing and high technology industry, especially near both interchanges. Recently, the development of first-class office space has occurred at a faster rate than has industrial development. From the second quarter of 1983 to the second quarter of 1984, first class office space increased 28 percent, while industrial space increased 1.4 percent. This change in rate is attributable to the rise of service industries statewide, as well as the demand for sites along major transportation routes.

Continued economic growth and resulting development pressures are predicted for Framingham as the Route 128 area is saturated and as Route 495 develops. The limited availability of developable land will be a major determinant in the scope and character of future commercial/industrial development in Framingham.

3.2 Residential Land Use

The Town's housing stock has undergone numerous changes: between 1960 and 1970, single family homes dropped from 75 percent of the total housing stock to 60 percent while apartment buildings of 5 or more units rose from 6 percent to 22 percent. Between 1970 and 1973 multifamily dwelling units accounted for 83 percent of all new dwelling units constructed. This situation contributed to the elimination of multi-family construction or conversion by right from the Zoning Bylaw in 1972 and a ban on duplex construction in 1976.

Framingham's residential density can be defined as a function of its early settlement history as well as its later zoning policies. The Southeast and South Side districts are the most dense, averaging between 4,000 and 5,000 persons per square mile (6.5 - 7.8 persons per acre), as compared to the Town-wide average of 2,443 per square mile. Their zoning district designations are: the South Side is zoned for General Residence with 8,000 sq. ft. minimum lot areas; and the Southeast includes General Residence as well as Single-Family Residence with 8,000 sq. ft. minimum lot areas. Apartments are located primarily along Route 9, but some are located in Nobscot, Saxonville, and the South Side.

The Northeast District residential zoning includes: Single-Family Residence of 8,000 sq. ft. minimum lot area and Single-Family Residence of 20,000 sq. ft. minimum lot area. It has a density of 2,474 persons per square mile (4.0 persons per acre). This quadrant has experienced 30 percent of the growth since World War II. A sizable part of the residences are tract housing in subdivisions. The Southwest Quadrant consists of all three Single-Family Residence zoning districts but its density is only 1,671 persons per square mile (2.78 persons per acre).

The Northwest Quadrant, with steep and rocky terrain, is residentially zoned at half-acre and one-acre lot minimums for single residences only. In addition, most of the Town's conservation land is located in this area. Thus it has the lowest density 1,422 persons per square mile (2.3 persons per acre). This area has been protected from large scale development not only by its natural features but, to some extent, by large lot zoning. These factors have constituted a substantial financial barrier to most developers and, consequently, to potential buyers.

However, this barrier is now being broken as evidenced in the exclusive Doeskin Estates and Dennison Hill subdivisions in one of the Quadrant's most remote and least buildable areas. Developers are able to overcome the soil limitations if the market will bear the cost. The healthy condition of the Massachusetts economy is contributing to a strong market for luxury single family housing. Dual-income young professionals couples, employed in high technology or service industries, are those most likely to invest in very expensive properties,

The only remaining limitation to development today is the availability of land. Meanwhile, the Town's remaining potentially developable land is dwindling from virtually unmitigated development. In addition to the development of large tracts of open space in the Northwest Quadrant, much infill development is happening across the entire Town.

4.0 DEMOGRAPHICS

4.1 Population Growth

Framingham was settled in the mid-seventeenth century. Its population expanded steadily until the Revolutionary War and then stabilized at about 1600 residents. Later on, the Town grew steadily for a century and a half. The average rate of growth between 1850 and 1980 has been approximately 24 percent per decade, as summarized in Table 2. There were several short-term population “booms”, counterbalanced by periods of slower growth. The growth of Framingham was consistent with the growth trends of the nation, linked to historical factors, such as industrialization and post-war expansion.

Between 1830 and 1850 the first local industries based on the power generated by the Sudbury River created a textile industry along its banks, in what became of the village of Saxonville. Additional early growth surrounded the two turnpikes: Route 9 (Worcester Turnpike) and Route 135 (Hartford Turnpike). The construction of the Boston and Maine Railroad through South Framingham in 1834 served to develop South Framingham as a major industrial center.

From 1910 to 1930 there was another period of rapid growth caused by a general economic expansion built on Framingham’s earlier industrial growth, and the beginnings of suburban expansion.

Between 1950 and 1970, the Town’s population almost tripled. Post World War II federal policies encouraged the development of highways and housing, both of which led to the vast migration of industry and households outwards from the Boston core. Framingham became a true suburb, transformed from a small, rural community to a commercial and industrial center. This growth was further accelerated by an exceptionally high birth rate, following the national trend.

The Town’s population grew by more than one-third between 1960 and 1980, from 44,526 to 65,113. Much of this growth occurred in new areas of Town, including the apartment development along Route 9 in the early 1970’s and single-family subdivisions in the Northwest Quadrant. Since 1970, however, the Town has experienced a slow rate of growth. In 1980 the population was 65,113, only a 1.7 % increase during the decade. In 1985, the population decreased to 61,241 (State Census), or a negative rate of 9 percent in 5 years. The Metropolitan Area Planning Council (MAPC) projects a stable or perhaps declining population through the year 2000.

Some factors that have contributed to reducing Framingham’s population are a decrease in land available for residential development; a decrease in average household size a decrease in birthrate; and the exclusion of any further apartment construction.

TABLE 2: POPULATION RATE OF CHANGE IN FRAMINGHAM

Year	Population	% Change
1850	4,252	-
1860	4,227	.5
1870	4,968	17.5
1880	6,235	25.5
1890	9,239	48.2
1900	11,302	22.3
1910	12,948	14.6
1920	17,033	31.5
1930	22,210	30.4
1940	23,214	4.5
1950	28,068	21.0
1960	44,526	58.5
1970	64,048	43.8
1980	65,113	1.7
1985	61,241	-9.4

Source: US Census of Population 1985 State Census

Population growth in Framingham depends, to a large degree, on national and regional trends, However, some local policies, such as the allowance of multi-family dwellings, would reverse the decline and contribute towards further population growth.

4.2 Population Characteristics

General characteristics of Framingham’s population are listed in Table 3. Although there are significant variations from area to area, the Town’s population as a whole is somewhat wealthier than that of the Boston metropolitan area.

TABLE 3: GENERAL CHARACTERISTICS OF THE POPULATION IN FRAMINGHAM

	Town of Framingham		Boston Metropolitan Area	
	1970	1980	1970	1980
Total Population	64,048	65,113	2,753,804	2,763,401
Median Age (years)	27.1	31.2	28.9	31.3
Median Family Income	\$13,090	\$26,110	\$11,449	\$22,848
Average Family Size	3.61	3.25	3.62	3.33
Families below poverty level (% of total pop)	3.8%	5.0%	6.1%	7.3%
Spanish origin(% of total population)	1.3%	3.4%	1.8%	2.4%
Race (% of total pop):				
White	98.3%	94.8%	94.5%	91.2%
Black	1.1%	2.3%	4.6%	5.8%
Asian/Pacif. Is.		1.1%		1.3%
Other	0.6%	1.8%	0.9%	1.7%
Total Employed Civilian Labor Force	27,250	35,107	1,136,474	1,336,220
Occupation (% of employed labor force):				
Managers, Professionals, Administrators	31.0%	32.0%	25.0%	30.0%
Technicians, Sales and Administrative Support Workers	34.7%	36.2%	34.5%	34.2%
Service Workers	11.9%	11.3%	12.6%	13.4%
Other	22.4%	20.4%	27.8%	22.4%

Source: 1970 and 1980 U.S. Census of Population and Housing

Framingham’s population is distributed across five planning Districts. In Table 4 are listed the variables of population density, income level (as a percent of the Metropolitan Statistical Area (MSA) median income), low and moderate income families, ownership of dwellings and age groups within each district.

TABLE 4: POPULATION CHARACTERISTICS BY DISTRICTS

DISTRICT	POP.	POPULATION DENSITY		INCOME % MSA median	LOW/ MOD INCOME		RENTER OCCUPIED D.U.S (% of total)	AGE GROUPS (% OF TOTAL)			
		per sq. mi.	per acre		# of families	%		Children (18)	Young Adults (18-35)	Adults (36-61)	Seniors (62+)
Southside	11,647	4,833	7.8	79%	2,226	79%	72%	28%	34%	23%	15%
Southeast	16,233	4,018	6.5	94%	2,402	68%	61%	20%	34%	24%	21%
Northeast	17,716	2,474	4.0	122%	2,368	49%	27%	28%	26%	34%	12%
Northwest	12,966	1,422	2.3	141%	1,278	36%	11%	33%	22%	37%	8%
Northwest	6,551	1,671	2.7	146%	546	34%	67%	23%	34%	33%	10%
Townwide	65,113	2,443	3.9	114%	8,820	54%	47%	26%	30%	30%	14%

*Income below 120% of MSA median family income.

4.3 Demographic Trends

Framingham's population will likely continue to experience a series of changes in composition and characteristics. These changes correspond to demographic trends apparent in metropolitan areas in the country.

Household Size. The average American household is becoming increasingly small. In 1890, it consisted of 4.93 persons; the number has fallen in each successive decade to 2.75 persons in 1980, and it appears likely that the decline will continue. The average metropolitan Boston household remains slightly smaller than the nation's average; in 1980 it averaged 2.69 persons, a decline of 13 percent from its size in 1970. This household size and the extent of the decline is typical for a major metropolitan area.

The reduction of household size is one factor explaining the fact that Framingham, with a stable or slightly smaller population, faces a housing demand, because of growth in the number of households.

Smaller households are not merely reduced versions of larger ones. Decline in household size accelerated over the 1970's, not only because of the falling birth rate, but because the young are forming their own households earlier, more people are divorcing, separating, and postponing or foregoing marriage, and life expectancy is increasing, leaving many elderly people to live alone longer. As a result, sharp changes have occurred in the extremes of household size distribution. There has been a large expansion in single-person households and a large reduction in households containing more than four persons.

Household Composition. Metropolitan Boston has a greater representation of related persons, people living alone, and unrelated persons in households than the United States as a whole. On the other hand, there are fewer married couples, with and without children, in the area than nationally. These differences in household composition are common in many larger metropolitan areas.

The profile of metropolitan Boston households in 1980 is very unlike that of only 10 years earlier. The number of households rose by 15 percent, but some types of households grew at dramatically different rates.

1980's Household Forecasts: In general, changes in household size during the 1980's are likely to be modest by recent standards, while changes in household composition will follow long-established trends. The demographics supporting the likelihood of these conclusions can be outlined, but rapidly increasing cost of homes and rent in the Boston area could reduce the ability of individuals to realize their household/lifestyle preferences.

MAPC's population forecast places average household size in 1990 at 2.5 persons, a decline of six percent from 1980. Since 1940, the shrinking of the household has been due mainly to the rise in the number of people living alone rather than to declining fertility. A disproportional large age group - the baby-boom generation - contributed substantially to the singles boom of the 1960's and 1970's, they reached the age to leave parental homes, but widely chose to delay marriage and children. During the 1980's, a large proportion of this same generation will probably reverse this trend, marry, and have children. As a result, household size could stabilize at least among families. More recently, young adults have remained in their parent's homes or lived with other single individuals to reduce housing expenses during a severe recession. The effect was only a small decline in household size. As of 1984, there were still 2.71 persons in each household, compared to 2.75 persons in 1980.

The largest contribution to future household size decline will be an increase in one person households, which will occur mostly among never-married men and women. A smaller influence on decline in size will come from increased longevity in women, as they outlive their husbands and maintain their households alone.

A 1990 household composition forecast for metropolitan Boston was developed from a national forecast by demographer Paul Glick.

The major changes which result are a decline in the proportion of married couples with children and increases in the proportion of people living alone, and to a smaller extent, in the proportions of single-parent families and unrelated persons.

When compared with the previous decade, the 1980's will see more moderate change in the overall mixture of households. The pattern of relative growth between household types remains similar to that of the 1970's except

that the number of married couples with children is projected to decline more sharply, while the expansion of the number of people who live alone and unrelated persons moderates.

Implications. As mentioned, the reduction of household size would mean the increase in the number of households, even if population remains stable or decreases slightly. This would be translated into a constant demand for housing, which has indeed been the experience in Framingham, and likely to continue in the future.

Furthermore, smaller household size will reduce the attractiveness of dwelling units containing a large number of rooms. Over time, the financial burden of owning a large home may lead to units which are poorly maintained. Options for communities such as Framingham which face these conditions include more flexible provisions for accessory apartments, conversion of residences to professional offices, and conversion to 2, 3 and 4 family dwellings.

There are also implications regarding anticipated shifts in household composition, An increase in the proportion of families headed by single parents will pressure local, state, and federal governments for more programs which encourage employment by easing the difficulties of working single parents. A clear example is the need for child care centers in residential areas and near workplaces. Similarly, governments will probably be asked to increase their support for such programs as Meals-on Wheels and home-based medical care and shopping in light of the expected increase in the proportion of elderly living alone,

5.0 ECONOMIC BASE AND EMPLOYMENT

5.1 Metropolitan Economic Changes

The industries which currently provide the major share of employment in metropolitan Boston are unlike those of just thirty years ago. Two large industrial sectors have transformed the source and nature of much of our employment: manufacturing had services. While the number of manufacturing jobs has remained relatively stable, service jobs have increased dramatically. This Metropolitan trend is fully reflected in changes operating now in Framingham.

Service industries include everything from auto repair and health services to hotel chains and education. In 1980, service-related jobs represent 36 percent of all Metropolitan Boston jobs, compared with only 20 percent in 1950; manufacturing jobs represent 20 percent of all jobs versus 29 percent in 1950. This demand for services has been created by the increasing specialization of labor and importance of new knowledge to economic growth. The decline in the importance of manufacturing is related to an increase in domestic and foreign competition and to automation of the work process.

During the 1970's, metropolitan Boston's services sector rose from 31 to 36 percent of all employment when compared to a national increase from 26 to 29 percent. Education, hospitals, and health care provided the largest increase in the number of new jobs because of their already large proportions of services employment. Several much smaller sectors provided the fastest rates of job growth - business, entertainment and recreation, and social service organizations, This experience began to filter in Framingham in 1980's, with the suburbanization of office parks and other service firms.

One job in five in the region is devoted to manufacturing, nearly the same proportion as nationally. Manufacturing employment here grew only slightly during the 1970's; nationally growth was much faster - 16 percent. The region's low rate of growth masked a great deal of volatility within certain sectors, The manufacturing of machinery (other than electrical), and miscellaneous durable goods generated both the largest number of new jobs and the highest rates of growth, These sectors contain the employment of the region's growing computer and instrument makers. Printing and publishing, and chemicals, all nondurable goods, experienced significant employment growth. The largest job losses, in numbers and percentages, occurred in other nondurable goods, including leather and textiles, once important regional employers. The plateau reached by manufacturing employment in Framingham and the uncertainty surrounding its largest industrial employer are factors to be considered in the Master Plan.

Real Estate generated the most rapid job growth during the 1970's, while banking generated the largest number of new jobs. Insurance contained the most number of employees, but grew the slowest. The financial activities sector has expanded from 6 percent of the region's employment in 1950 to 8 percent in 1980. Regional employment in

banking, insurance, and real estate is now 2 percentage points higher than in the nation. This sector has already appeared as one of the most dynamic in Framingham.

Metropolitan Boston has for many generations attracted the entrepreneurs and engineers who research and develop tomorrow's emerging technologies. Its financial institutions aid in the raising of venture capital; its legal, accounting, and computer services organizations enhance corporate productivity; and the area's universities provide freshly-trained engineering and business school graduates. As a result, the Boston region contains one of the highest concentrations of high technology in the country; 126,000 jobs, representing 44 percent of the area's manufacturing employment.

5.2 Regional Employment

Regional employment has been showing a healthy growth pattern. Total employment in the Boston Metropolitan Area grew by 43 percent between 1967 and 1985. But economic growth has not been a mere extrapolation; there have been key structural changes of considerable importance to Framingham. The composition of regional employment is changing towards a service economy of technological characteristics, and its location is changing towards the suburbs bounded by Routes 128 and 495.

The three major employment sectors in the Boston Metropolitan area, Services, Wholesale/Retail Trade, and Manufacturing, have experienced significant changes in the last twenty years, showing a regional shift away from manufacturing and towards services. Between 1967 and 1985, manufacturing jobs declined from 28 percent to 18 percent of the regional employment - and in absolute level, they declined by 8 percent. Wholesale/retail jobs declined slightly in the same time period, from 25 percent to 23 percent of the regional employment - though growing in absolute numbers by 133 percent. It was the service sector which showed the greatest gain in jobs, their relative share increasing from 12 percent to 29 percent of the regional employment during 1967 and 1985 - while their absolute levels increased a dramatic 337 percent.

The shift towards the service sector is a sign of a pervasive change in the regional economic base. The Boston Metropolitan Area, and especially the corridors linking Routes 128 and 495, have been a cradle for the high technology industry, including major companies such as Wang, Digital, and Prime Computer. The growth of high technology has had an impact beyond its statistical importance, generating the atmosphere of a pioneer area offering high quality employment and creative scientific and technical endeavors.

The economic micro-region around Framingham, constituted by the Town plus Natick, Wellesley, and Southborough, has experienced a dramatic increase in its employment level, although its population has remained basically stable. Population of the four municipalities increased by only 7 percent between 1967 and 1985 (metro population declined by 1 percent in comparison). In contrast, employment increased by 97 percent in the same time period (while metro employment increased by 42 percent).

5.3 Framingham Employment

Employment has been growing steadily in the Town. From less than 20,000 in 1960, the work force reached 26,393 in 1970 (32 percent increase), 40,136 in 1980 (52 percent increase), and 48,844 in 1986 (22 percent increase). The decade of 1970 to 1980 witnessed a very substantial growth; during the last years, growth has somewhat leveled but it still reflects a healthy economy. Between 1967 and 1986, the total employment in Framingham grew from 20,778 to 48,844, that is a relative increase of 235 percent.

A most important characteristic is the pervasive change observed in Framingham's economic base. The regional employment trend towards suburban-based service employment is complemented by the strength of a traditional sector in Town: retail trade.

In 1967, the major sectors, in terms of absolute employment levels, were Manufacturing with 9,518 jobs, Wholesale and Retail Trade with 5,927 jobs, and Services with 2,344 jobs. In 1986, the same sectors occupy the top positions: Manufacturing with 13,787 jobs, Wholesale and Retail Trade with 13,241 jobs, and Services with 10,824 jobs.

However, the share of the three major employment sectors in Town changed substantially. While in 1967 Manufacturing represented 46 percent of the Town employment, in 1986 it represented only 28 percent. Wholesale

and retail trade maintained its relative share in the Town's employment, 29 percent in 1967 and 27 percent in 1986; but Services increased sharply, from 11 percent in 1967 to 22 percent of Framingham's total employment in 1986.

The shift in the Town's economic base - which is a reflection of the metropolitan trends - is reflected in the growth rates of each sector. The most dynamic sector is Services, which grew 462 percent between 1967 and 1986, followed by the relatively small Fire-Insurance-Real Estate, with 300 percent. Wholesale and Retail Trade grew only 223 percent, approximately the same rate as total employment in the Town, 235 percent. The relatively small Transportation-Utilities Sector grew at a somewhat faster rate, 271 percent, Construction at 189 percent, while the still important Manufacturing Sector grew at only 145 percent.

Thus, the most visible mainstay of the economic base in Framingham, Wholesale and Retail Trade, grew at approximately the same rate as total employment, indicating that, though still very important, it may be reaching a plateau in its growth. Manufacturing appears to be far less dynamic than any other sector, though it still carries weight in the local economy, It is the Service sector which exhibits the most dynamic performance; if we add Fire-Insurance-Real Estate, they constitute a combined sector which may soon be the largest in Town.

TABLE 5: FRAMINGHAM EMPLOYMENT BY SECTOR, 1967 - 1986

Year	Total	Sector								
		Govt	Agric	Mining	Constr	Manuf	Transp Util.	Whole/Ret. Trade	F.I.R.E.	Service
1967	20,778	na	82	33	1,003	9,518	1,198	5,927	676	2,344
	100%	na	0%	0%	5%	46%	6%	29%	3%	11%
1986	48,844	3,577	217	na	1,898	13,787	3,252	13,241	2,025	10,824
	100%	7%	0%	na	4%	28%	7%	27%	4%	22%
%chg. 67/68	235%	na	264%	na	189%	145%	271%	223%	300%	462%

Source: Massachusetts Division of Employment Security

6.0 NATURAL RESOURCES

Water Resources

The Sudbury River flows through the Town and there are three MWRA reservoirs in the southwest, Other surface water resources are Learned Pond, Waushakum Pond, and Lake Cochituate, which are used for swimming, and Farm Pond, near Downtown. According to water resources studies by the Massachusetts Division of Environmental Quality Engineering, there are only a very few areas of Town where ground water resources could be drawn upon for water supplies,

Water resources considerations that must be related to development include the following:

- protection of the reservoirs from adverse impacts of development, particularly in the area of the Mass Pike interchange 12 where many new projects are proposed.
- protection of the well fields in the northeast, especially where sizable projects may be under consideration.
- protection of the Town's ponds from adverse development impacts. Improving the quality of Farm Pond is an important need.

Open Space - Open space -- undeveloped and/or recreation land in, public and private ownership -- comprises about one fifth of the Town's total land area. Publicly owned open space comprises sixty per cent of the total open space. Among the larger public properties are Callahan State Park (425 acres) and Nobscot Mountain Summit (117 .acres) in the Northwest part of town. Other areas include parks, school grounds and conservation areas. Privately owned open land to which the public has access includes two golf courses, the 'Garden in the Woods', and the Sudbury Valley Wildlife Sanctuary. Institutional sites with significant amounts of open space include Cushing Hospital and Macomber Farm.

The Open Space issues of most significance to the Master Plan are:

- the future use of institutional open space, such as the Cushing Hospital and Macomber Farm
- the development potential of privately owned land which is not accessible to the public. Much of this land is located in the northwest part of the Town.

Floodplains A flood hazard area map based on a floodplain map developed by HUD is used to establish Floodplain Protection Districts within which the zoning by-law requires a special permit for all structures. The goals of floodplain protection are to protect persons and property against flood hazards, to preserve natural flood patterns providing floodway storage and runoff capacity, and to protect the Town from unsuitable development in flood-prone areas.

Wetlands - The Massachusetts Wetlands Protection Act is administered by the Conservation Commission according to regulations established by the state. It is the responsibility of the Conservation Commission to impose conditions on certain activities affecting wetlands in order to adequately protect significant wetlands.

A map of wetlands based on planimetric and topographic surveys done by the U.S. Geologic Survey in 1939-1940 and revised in 1965 was prepared by the Planning Department. This mapping is not sufficiently accurate or up-to-date, however, to identify wetlands which can be made subject to deed restrictions under the provisions of the Inland Wetlands Restriction Act

7.0 TRANSPORTATION

7.1 Vehicular Traffic

Framingham's road network can be summarized as being comprised of two major east-west highways and a number of smaller north-south roads. The Massachusetts Turnpike and Route 9, linking Boston with Worcester and points west, offer high speed channels which carry ever increasing traffic volumes. The unrestricted nature of Route 9, in addition, has created a major development corridor. A third, comparatively minor, east-west road is Route 135; the larger Route 30 is also part of the east-west system.

In contrast, the north-south vehicular movement is limited by the low capacity of the only available north-south roads. Route 126 is the most important north-south link; others are Edgell Road, Union Street, and Temple Street. The extensive local and commuter traffic generated by commercial and residential development in Framingham and surrounding towns flows in a north south direction through congested local roads in order to reach the Mass Pike and Route 9, which offer a relatively good channel of flow in an east-west direction. These grossly inadequate north-south roads pass through downtown and residential neighborhoods. Particularly critical is the Route 126 intersection with the railroad tracks in the Downtown. Other problematic intersections include the crossings of local streets with Route 9 and the crossroads at local centers.

The problem in the east-west system, mainly Route 9, is that the traffic volume growth is fast outstripping the capacity of the highway. Local developments in the Route 9 corridor are major contributors to it.

7.2 Public Transportation

Long-distance passenger rail service is provided by AMTRAK along the inland route, one of the two most important rail routes in New England. This route passes through Framingham, then proceeds westward to Worcester, Springfield, Pittsfield, then through New York State to Buffalo and along the southern shore of the Great Lakes to Chicago where it meets the major western railroads. The inland route connects with the other major rail route, the coastal route, in Boston where AMTRAK provides passenger service to Washington, D.C.

Commuter rail service between Framingham and Boston is provided by the MBTA. Several morning and evening runs are provided on this line at roughly half-hour intervals. The town is cooperating with the MBTA to build a new train station in Downtown Framingham. The MBTA is committed to upgrading the stock on this line and to providing additional daily runs.

There are also several bus services, including the "Logan Express" from Shoppers World; private routes linking the town with Boston, Newton, and Worcester, as well as surrounding communities and Route 128; and five local lines supported by the Town and the MBTA.

8.0 MUNICIPAL INFRASTRUCTURE

8.1 Streets

Framingham has approximately 215 miles of accepted roads and 4.2 miles of surfaced but not yet accepted roads. The Massachusetts Turnpike is maintained by the Turnpike Authority; Route 9 and six other state highways, covering 8.8 miles, are maintained by the State Department of Public Works; and 35 additional miles are designated as county highways and as such qualify for Chapter 90 funds for maintenance and repair.

Framingham's roads are distributed through all areas of the town. There is substantial variation in widths and conditions. The old rural routes of the northwest and southwest districts are often quite narrow and winding and barely sufficient to accommodate the increasing amounts of traffic generated from the residential subdivisions. Many of these routes have been designated as "scenic roads", thereby preventing any structural improvements such as widening without the prior approval of the Planning Board.

Virtually all new street construction since the late 1950's has been undertaken by private developers as part of subdivision requirements. Once a street is "accepted" it becomes a public way.

Recently the Highway Division has focused on repair and replacement of key bridges spanning the Sudbury River and rail lines, progress being contingent upon federal and state grants.

Since the State subsidizes the cost of roads heavily traveled for non-residential uses, agents of future residential growth should contribute substantially to the cost of building and maintaining residential streets.

8.2 Sewer

The existing system consists of 193 miles of sewer line and 40 pumping stations of various sizes. The Town maintains its sewer plant through an ongoing capital improvements program. This has permitted upgrading of facilities within the densely populated areas south of Route 9. Many of these improvements have been funded by federal Community Block Grants and other federal funds which supplement local appropriations.

The Town's sewer system serves about 85% of the Town's population. A 1968 Master Plan recommended against providing public sewer facilities to the northwest part of Town, primarily because of the high cost of building an extension through because of unsuitable soils, wetness, and ledge, and secondarily limited capacity of the Metropolitan Sewer District. Town sewer facilities dispose of all wastewater via the Metropolitan District Commission's (MDC) Metropolitan Sewerage District (MSD) Wellesley-Framingham Interceptor, to the Nut Island Sewerage Treatment Plant in Boston Harbor. By 1970, the capacity of the Nut Island Sewerage Treatment Plant was reached, and a moratorium on new sewer connections within Framingham was imposed.

Since the Northwest Quadrant was zoned for low-density residential development, continued use of septic systems was a reasonable program for this area. Generally, residential lots of at least one acre will include a portion suitable for an on-site septic disposal system. Nevertheless sewer extensions have been built in the southern part of the Northwest Quadrant, and others are going in to the northern section adjacent to Edmands Road.

Overall sewage disposal conditions have improved in recent years. After the moratorium was imposed, the MDC implemented a program which requires the Town to remove two parts of stormwater infiltration for every one part of proposed sewage from a new connection. A "banking" system has evolved whereby the Town's program of sewer inspection and sealing of lines to prevent infiltration has enabled the Town to build up and maintain a sewer connection capacity inventory. The Town has so far been able to approve all applications for new sewer connections.

8.3 Water

The MDC Water District provides the Town with 95% of its water. The other 5% comes from private wells and one Town well. The Town's distribution system is however, operated by the Town's Water Division.

Unlike the constraints existing with sewer service provision, the Town is able to provide water to over 99% of the Town's population through 227 miles of water main. The only problem area is located in the Northwest Quadrant; north of the MDC pressure aqueduct. Most of this area is currently served by the Town's high elevation service

system. However, this system's 300,000 gallon storage tank fails to serve the area adequately. In addition, substantial portions of the area do not have water mains, and other areas, such as Doeskin Estates, are at too high elevations.

Public Works has begun a water improvements project to be phased in over a number of years as funds become available. The Town's share of the cost is estimated at over \$3.5 million. Phase II involved the construction of a new 1.1 million gallon storage tank which was intended to improve existing water services to connected areas. However, some unserved areas will require the construction of another storage tank and a booster pumping station in order to connect to the public system.

Regarding future growth impacts on water supply, the Massachusetts Executive Office of Environmental Affairs projected in 1977 a supply deficit by 1990, based on current water resources. In response to similar projections in the Boston metropolitan area, the State approved a large scale reorganization to assess long-term problems and to develop a long-range solution to the supply of and demand on these two water resource systems. The newly organized Massachusetts Water Resources Authority assumed responsibility for MDC water and sewer operations in July 1985.

9.0 GENERAL POLICIES

The redrafting of Framingham Zoning By-Law and the establishment of a Land Use Plan for the Town are based on some key selected policies, agreed to by the community. The Land Use Plan and the revised Zoning By-Law are instruments implementing the Town's goals, which are translated into general policies on development, conservation, and preservation. Thus these policies are basic parameters guiding the Town's future.

Policy: Residential Neighborhoods must be preserved and protected.

Existing residential neighborhoods shall be protected from encroachment by other uses, especially business uses, and shall continue to be constituted by single family homes and without multi-family buildings (apartments and condominiums).

Policy: Open Space must be preserved and linked in a system.

Existing open space shall be protected from encroachment by any other use, and ways shall be found to link existing and future open space into a continuous system.

Policy: Small Village Centers must be preserved and strengthened

Existing small scale centers shall be preserved against large scale unsuitable development and strengthened to continue to provide commercial services to neighborhoods in a small town atmosphere.

Policy: Growth must be focused in selected development areas.

In order to provide for an expanding tax base and to reduce development pressures in or near residential neighborhoods and small village centers, growth shall be redirected to areas suitable for development.

Policy: Housing Opportunities must be widened

Affordable housing and a variety of housing types must be provided, to fulfill the needs of a whole range of households.

Policy: Transportation options must be expanded

Public transportation must be encouraged, to provide alternatives to the private automobile which is imposing an increasing burden on the town's streets and roads.

Policy: Integration must be fostered at various levels

From residential integration, by intermixing affordable units and housing of various types in every neighborhood, to mix use centers, with residential and non-residential uses, the community should be integrated.

Policy: Environmental Quality must be improved

From improvement of the Route 9 Corridor to establishment of protective measures in residential neighborhoods, the Town must upgrade its deteriorating environment

SECTION II: AREA AND BUILD OUT STUDIES

1.0 'THE GOLDEN TRIANGLE'

1.1 Existing Conditions

The "Golden Triangle" or "Golden Mile" is a commercial hub on Route 9 which includes major establishments such as Shopper's World, Caldors, the Natick Mall and other important retail facilities. Part in Framingham and part in Natick, the area constitutes the largest retail complex in Metropolitan Boston other than Downtown Boston. The Framingham part of the area comprises the triangle formed by Route 9, Speen Street and Route 30.

The Golden Triangle is accessible by the Mass Turnpike, Route 9 and Route 30. Because of this excellent accessibility, the area constitutes a regional shopping center, which attracts people from the surrounding communities of Wellesley, Natick, Wayland, Sudbury, Marlborough, Southborough, Ashland, and others.

The recent slowdown of the market, however, has led to vacancy rates of 15 percent in office buildings and 35 percent in R&D space, according to our interviews with local developers. Nevertheless, Metro West has projected the need for 1.8 million square feet in additional office space in the next years; a major share of this growth would likely locate in the Golden Triangle.

The area has become one of the most valuable stretches of real estate in metropolitan Boston. Assessed valuation recently exceeded the two hundred million dollar mark in Framingham alone.

Present zoning by-laws in Framingham, which establish a maximum Floor to Area Ratio (FAR) of .32, allow for an additional amount of development which is almost double the amount of existing building space in the Framingham part of the Golden Triangle. Currently, over 2,800,000 square feet of new development is proposed. The prime redevelopment properties include Shopper's World and other large stores with expansive parking lots and obsolete buildings.

The Golden Triangle is used in a variety of ways. The larger portion of the area is used for business purposes, including retail and commercial activity, making this the single most important use; business-zoned land accounts for over half of the land in the area. Buildings in residential and professional zones occupy less than 6 percent of the total building space, while manufacturing and warehousing occupy the rest.

1.2 Zoning

The total land area in the Framingham part of the Golden Triangle consists of 561 acres, including a small residential zone. There about 179 acres of vacant land, which represents about 32 Percent of the total land area. Vacant land excludes parking lots, open space or wetlands.

1.2.1 Business (B)

Approximately 303 acres of land, both built and vacant, comprise the Business zone in the Golden Triangle. This represents about 54 percent the total land in the Triangle area. There are 2,165,291 square feet of development space, which represents 48 percent of total development in the Triangle. In addition, 107 acres of land are vacant, representing 35 percent of the Business zone.

1.2.2 Professional (P)

A small part of the Golden Triangle, 25 acres or 4 percent, of the total land area, is zoned professional. In this district are 197,922 square feet of development representing 4 percent of total development in the area. This zoning district includes also just over 2 acres of vacant land which represents 9 percent of the land in the zone.

1.2.3 Light Manufacturing (M-1)

Land zoned for light manufacturing occupies 119 acres, which represents 21 percent of total land area in the Golden Triangle. This zone is occupied by 784,704 square feet of building area, which represents 17 percent of the total amount of development in the area. There are approximately 55 acres of vacant land in the light Manufacturing zone, which represents about 46 percent of this zone.

1.2.4 General Manufacturing (M)

Some 86 acres of land are zoned for manufacturing, or 15 percent of the total land area in the Golden Triangle. Development currently totals 1,139,865 square feet which represents about 31 percent of the built area in the Golden Triangle. Within this zoning district there are 9 acres of vacant land which represents 11 percent of the “General Manufacturing” zone.

1.2.5 Residential (R-1)

The Golden Triangle contains 28 acres of residential-zoned land, representing 5 percent of total land area in the Triangle. Built space consists of some 107,364 square feet which represents 2 percent of the total building in the entire area. Vacant land in this zone amounts to a little over 6 acres, which represents 21 percent of this zoning district.

TABLE 6: GOLDEN TRIANGLE - LAND USE AND DENSITY

Zoning District	Existing Development		Developed land Acres	Net Density FAR	Vacant Land		Total Land		Gross Density FAR
	s.f.	%			Acres	%	Acres	%	
Business	2,165,291	48	196	0.25	107	35	303	54	0.16
Light Man. (M-1)	784,704	17	64	0.28	55	46	119	21	0.15
Manufacturing (M)	1,389,865	31	77	0.42	9	11	86	15	0.37
Professional (P)	197,922	4	23	0.20	2	9	25	4	0.18
Subtotal	4,537,782	98	360	0.29	173	33	533	95	0.20
Residential (R-1)	107,364	2	22	0.11	6	21	28	5	0.09
Total	4,645,146	100	382	0.28	179	32	561	100	0.19

Notes: Net density (FAR) represents Existing Development over Developed Land. Gross Density (FAR) represents Existing Development over Total Land. Percentage of Vacant Land is computed against total land in each Zoning District.

1.3 Build-Out Analysis

A build-out analysis was conducted for the Golden Triangle. Based on assessors’ maps and information, land and buildings data for each parcel in each zoning district was assembled and analyzed, in order to highlight the built density in each developed parcel and the amount of vacant parcels. Comparing the actual density of development with that allowed by the zoning bylaw, it is possible to deduct the additional density that could be built in the area, leading to a “build-out” condition. This analysis does not intend to be a forecast of future development trends - these depend on many factors besides additional allowable density - but a parameter indicating the development potential in the area to inform land use planning decisions.

The basic information on existing conditions is detailed in the previous Section 2 (Zoning) which includes total developed and vacant land, built development, and net and gross density, by zoning district. Net density (FAR) is computed as built development over developed land, while gross density (FAR) is computed as built development over total land. The difference between that density (FAR) which is allowed in the zoning by-law, e.g. 0.32, and the actual gross density is indicated in Table 7 below; this table also includes the additional (potential) development and its relative increase over current levels.

The Golden Triangle has the potential to grow 73 percent over the current levels, a startling conclusion considering its impacts on traffic. This overwhelming growth could take place, mainly, in the Business-zoned areas, where more than 2 million square feet could be built, effectively doubling the existing development. The Light-manufacturing zoned areas could grow by almost 900,000 square feet, more than doubling the current development. As a total figure, 3,400,000 square feet could be developed in addition to the existing 4,600,000 square feet.

Several assumptions must be mentioned. Residential land was assumed to be developed under non-residential density guidelines - the effect of this assumption is minor, 10 percent of the total potential development. Manufacturing land is currently developed above the legal FAR limit and thus no additional development was computed. However, it is conceivable that the existing industrial and warehousing uses be replaced with other business uses which could generate more trips; this could have a considerable impact without adding net development.

TABLE 7: GOLDEN TRIANGLE - BUILD-OUT ANALYSIS

Zoning District	Total Land Acres	Legal Density FAR	Gross Density FAR	Addl. Density FAR	Addl. Devel. s.f.	Increase %
Business	303	0.32	.16	.16	2,111,789	98%
Light Man. (M-1)	119	0.32	0.15	0.17	881,219	112
Manufacturing (M)	86	0.32	0.37	0	0	0
Professional (P)	25	0.32	0.18	0.14	152,460	77
Subtotal	533				3,145,468	69
Residential (R-1)	28	0.32	0.11	0.21	256,133	238
Total	561				3,401,601	73

Notes: Additional density represents the difference between the allowed density in the zoning by-law and the actual gross density of development currently on the site. Build-out in the Residential District has been assumed to be controlled by the non-residential density limit.

1.4 Issues

The main issues of the Golden Triangle can be subsumed under a key question: future growth. Some issues such as existing traffic congestion and hazardous conditions not only require correction of problems but also prevention of even worse traffic problems in the future. Other issues, such as poor environmental conditions are closely linked with the type of development in the area: future growth without qualitative change would only exacerbate the problems.

1.4.1 Development Potential

The built-out analysis indicates that the Golden Triangle is far from reaching its development potential. No less than 3,400,000 square feet of development could potentially be added, on top of the existing 4,600,000 square feet, an increase of 73 percent.

This means an additional work force of between 5,700 and 15,400 new employees, depending on the combination of land uses being developed in the area. This also means a total labor force, including the 11,000 employees working currently, of 16,700 to 26,400 employees in the Golden Triangle. The traffic impact should also add considerable numbers or trips generated by any future retail operations. Under assumptions of a majority (80 percent) of office development and a minority (20%) of retail, no less than 43,800 additional vehicular trips per day could be generated. Clearly, different breakdowns in the type of development would affect the trip generation, but it is obvious that the development potential would have serious impacts on the area if left uncontrolled and unmanaged.

1.4.2 Traffic Congestion and Hazards

As mentioned in the Route 9 Corridor chapter, severe congestion along Route 9 in the Golden Triangle causes the traffic circulation to be at a standstill during peak travel times. A cause of this congestion, in addition to high volumes of traffic, are the numerous curb cuts, which make for unsafe conditions, reduce speed and the capacity of automobiles to move freely. Many types of enterprises located there tend to be high traffic volume generators, such as fast food restaurants and liquor stores.

Previous studies indicated that through-traffic amounts to 55 percent of the total flow. About 70 percent of the total flow originates in Framingham or Natick, and 50 percent of those are commuter trips. Shopping trips represent 45 percent of the trips to the area, and 90 percent of these originate within a 10 mile radius of the Golden Triangle (MDPW). Thus 45 percent of the traffic is generated by uses within the Golden Triangle itself.

Proper management and control of traffic conditions, within the limitations inherent to the area, must be a major objective of the master plan.

1.4.3 Lack of Public Transportation

There is a general lack of public of transportation to the malls, and between them. The only such public transportation is a locally run bus service between Downtown and the malls. The buses run once an hour, carrying mostly students and elderly patrons. The Shoppers' World area is the location of a regional transportation node for inter-city buses, the Massport Airport buses, and buses to downtown Boston. Peter Pan Bus Line provides

transportation to Logan International Airport from Shopper's World. This service is sponsored by Massport and is known as the 'Logan Express'. Several private bus companies provide transportation services to Boston from the Framingham area. Marathon Bus Lines runs an express service from Westboro to Boston.

The study and selection of the best way to use public transportation to serve the Golden Triangle would ameliorate traffic congestion and hazards in the area.

1.4.4 Inefficient Use of Land

A characteristic of the Golden Triangle is that extensive surface parking lots cover most of the area, surrounding retail malls and other stores and commercial buildings. These sprawling parking lots occupy land which could be better used. It should be noted that additional use need not intensify traffic congestion proportionally if relatively low traffic generators such as residential development were introduced. In addition, if structured parking could be made feasible the resulting land available for development could be devoted to residential and mixed purposes. A major benefit of this policy would be a radical improvement of the extremely poor environmental conditions in the area.

1.4.5 Pedestrian Access

There is no pedestrian access on or over Route 9, or between the malls, which makes pedestrian mobility difficult, if not treacherous, and forces prospective pedestrians to drive. The substantial number of trips generated within the Golden Triangle adds a considerable impact in terms of congestion and hazards, due to its slow speed and turning movements. Ways to encourage pedestrian movement would go a long way to ameliorate these impacts, as well as to improve the environmental conditions of the area.

1.4.6 Signage

The signage in the area is uncoordinated, unplanned, and chaotic, causing visual blighting and confusion. As part of the improvement of the visual environment, signs would need to be planned and coordinated.

1.5 Planning Alternatives

Two alternatives for development have been identified for the Golden Triangle. The first is to maintain existing zoning policy, and to make some relatively small scale physical improvements. These changes would involve landscaping and providing buffers of trees to separate individual properties and roadways. Signage could be improved by coordinating and submitting signs to a design review process. The second alternative would encourage mixed uses, would involve the relationship of development to traffic capacity, and would involve significant physical improvements.

1.5.1 Alternative One: Continuation of Existing Policies with Minor Improvements

As noted, existing development amounts to more than four and a half million square feet, and could almost double under current zoning regulations. However, traffic congestion in the Golden Triangle area is already among the worst in the state, and the blight of its physical environment is equally critical.

One alternative for the future of the Golden Triangle is to continue with current policies which permit auto-oriented malls, and allow development to occur at the permitted floor-to-area ratio (FAR) of .32. This would lead to intensified development, accompanied by increased traffic congestion and environmental degradation. (Proposed projects for the area intend to deal with the environmental quality problem by simply adding cosmetic touches to larger malls; structurally, they remain more of the same type of development.)

Current zoning does not provide for planning or coordination in developments, nor design guidelines for buildings, parking areas, or signs. The result of these policies will be continued haphazard growth with no consistency or integration in the community pattern.

Some physical improvements could be made under current policies such as the establishment of buffers of trees along the sides of Rte. 9 and other major roads thus giving relief from the visual light caused by stretches of black top parking lots and ad hoc buildings.

The following briefly analyzes the impacts of continuing with the existing development policies on parking and traffic circulation, en space, and housing opportunities for low and moderate income residents .

1.5.1.1 Traffic and Circulation

Capacity has been reached on all major Golden Triangle roads, as discussed in the various chapters of the Transportation Section. Additional auto-oriented growth would lead to even more seriously congested conditions.

The State DPW is developing proposals to improve the efficiency of Route 9. However it is clear from our meetings with State officials and technical staff, that there are obvious limits to what continued highway improvements could achieve, in a context if continuous traffic increases. Their, and the Consultant's, opinion is that Route 9 should be improved to assure the smooth flow of regional through traffic and that the Golden Triangle area must be re-oriented to ameliorate the impact of its future development on Route 9 and other surrounding roads and streets.

The impact of future growth on traffic in the Golden Triangle has been detailed in the Route 9 Corridor Chapter. Previous studies by MAPC (Route 9 Corridor Planning Study, Feb. 1988) showed even higher traffic volumes. Future land uses in the region may generate an aggregate of over 256,000 vehicle trips per day, on the Route 9 Corridor, including Framingham, Natick, Southboro, and Wellesley. Traffic from Framingham is likely to contribute the greatest number of trips. Current projects on Route 9 in the whole region either under construction or proposed, may account for over 63,000 trips per day. Clearly, the impact of increased intensity of auto-oriented land uses allowed under present zoning regulations will have a devastating effect on the road systems.

As mentioned, in the Golden Triangle, the strictly auto-oriented infrastructure system prohibits pedestrian movement, There is no pedestrian access over Rt. 9 or between malls, which adds the burden of slow-moving vehicles traveling within the area.

1.5.1.2 Open Space

Although there is a considerable amount of vacant land in the Golden Triangle, no open space exists to provide visual or recreational amenities. This situation would remain if current policies were to continue.

1.5.1.3 Housing Opportunities

Although housing is a permitted use in much of the Golden Triangle, residential development is unlikely at the relatively low densities permitted (single and two family homes). Given high land values, only higher density multifamily dwellings would be justified. Multifamily development, however, is not permitted. Therefore, continuation of current policies would result in little residential development, and thus would have little effect on ameliorating the shortage of low and moderate income housing.

1.5.2 Alternative Two: Mixed Use Alternative

The second alternative involves two basic goals; firstly, to manage growth by controlling the effects of sprawl development; secondly to limit the volume of traffic produced by further development.

The objectives of the mixed use alternative is to ameliorate the area's present and future traffic congestion, to encourage mixed use developments, and to reduce the visual blighting caused by sprawling parking lots, uncoordinated signage and large, unplanned malls.

Uses to be encouraged would include higher density multifamily housing, certain types of office, retail, hotels, recreational facilities, restaurants, theaters, education and cultural facilities, banks, and research and development facilities. The permissible mix of uses has been chosen in accordance with their potential generation of vehicle trips per day.

Certain uses would be prohibited, or allowed only in certain areas, such as fast-food restaurants with attached parking and enterprises generating all-day, high volume traffic.

Gas stations and auto repair shops would be allowed only in limited places, such as near the entrance to the Golden Triangle on Route 9 rather than in the midst of the mixed use areas, and car rentals will be limited to specific areas.

In this alternative developers are offered density bonuses above the maximum permitted floor-to-area ratio (FAR) of .32 as incentives to provide contributions for parking facilities, low and moderate income housing, public transit, open space, street networks, and amenities such as pedestrian bridges over Route 9.

1.5.2.1 Housing

Residential opportunities could be developed in the Golden Triangle to address the need for housing in Framingham. residential development would also ensure that 24 hour activity, occurs in the area to assure safety, create a sense of community, encourage stability and offer a consumer market. The level of transportation commercial activity and services which could be concentrated in the area make it an excellent location for housing. This assumes, of course, a radical improvement in the environmental conditions of the Golden Triangle.

Housing could be integrated in the form of residential blocks or above retail space, and should be conveniently linked to the transportation system, street network, pedestrian footbridges, and easily accessible open space.

1.5.2.2 Open Space

Developers would be required to address needs of open space into the Golden Triangle. For each specified amount of housing, retail or office development, a certain amount of open space would be required to be within a specified distance of the developments. For example the requirement for open space for housing development could be one acre of open space for 50 dwelling units; open space should be provided within 300 feet of the units, an easy walking distance even for small children and elderly.

For any new retail and office developments, the open space requirements of one acre of open space for 200,000 square feet of development could be used, Wetlands could be counted if they are accessible, as well as tree-lined boulevards, if the width of open space is at least 30 feet to form a linear park.

1.5.2.3 Service Boulevards

The indiscriminate use of curb cuts results in the further slowing of traffic movement, exacerbated by the existence of high volume traffic generators such as numerous fast-food restaurants which continuously attract people throughout the day. Traffic congestion is a major issue for the Golden Triangle which could be managed in part by the use of curb cut policies. At least comprehensive and consistent curb cut policies and guidelines which control and review their use must be devised to ensure the success of the policy.

Far more comprehensive is the provision of service roads, which would eliminate the need for curb cuts and would funnel traffic into the stores and malls; they would remove slowing and turning vehicles from the major roads and permit through traffic to flow efficiently. Service boulevards parallel to Route 9 could be included in the redesign of the road systems. These service boulevards should be landscaped and stores should have shop windows facing them.

In addition, improved connections to the Mass Turnpike or direct access to the Golden Triangle from the Mass Turnpike interchange where possible, would alleviate some of the traffic congestion on Route 9 and Route 30.

1.5.2.4 Street Network

A precondition for the creation of true community pattern, is the existence of streets and blocks. Thus, it would be necessary to establish right-of-way easements for internal streets in the Golden Triangle in order to rationalize circulation and physical layouts. It would also greatly improve the visual environment.

The guidelines for their design would be established in the Master Plan, including the definition of suitable development blocks between streets. Internal streets could intersect every 300 to 450 feet, forming an internal grid. This would also regulate the intersections with Route 30 and Speen Street. Some streets in the Triangle should be developed as landscaped boulevards, with linear parks in the center.

The street network should improve the connection with the Mass Pike and a proposed intermodal transportation center which will be developed by the State at the access point to the Mass Pike. This facility will combine a proposed State commuter garage with express bus station; stops for local buses could easily be integrated into it.

1.5.2.5 Public Transportation System

An internal public transportation system could potentially eliminate the internally generated traffic within the Golden Triangle, substantially improving the flow of vehicular movement. Developers' impact fees could be used to pay for the public transportation by establishing a fund to pay for transportation improvements and operation costs.

In addition, a high frequency shuttle service to the malls, accessible from major centers such as Framingham Center, Downtown, Saxonville and Nobscot and the Northwest Quadrant, would encourage some people to leave cars elsewhere, and would alleviate some of the traffic on Route 9. Further, buses could connect with the new multi-modal transportation center proposed by the State for the area near the Mass Pike Interchange.

More conventional measures to ameliorate traffic problems along Route 9 should be explained, including the promotion of variable work hour programs for businesses in the Golden Triangle, voluntary ride-sharing programs and more car and van pools .

1.5.2.6 Pedestrian Bridges

Pedestrian facilities, including weather protected pedestrian bridges over Route 9, integrated with retail space connecting different malls, and pedestrian networks linking transit and transportation facilities would decrease dependence on the auto-mobile, and thus reduce traffic congestion on Route 9, and connecting roads. The use of pedestrian activated traffic signals would be necessary in integrating pedestrians in the auto-oriented area.

Developers would be encouraged through incentives to contribute to the construction of covered, enclosed bridges over Route 9 by allowing retail space on both sides and on top of the bridge, in addition to the permitted floor-to-area ratio (FAR). The bridges would be integrated with the mall spaces, linked to the street network, and accessible to public surface transportation.

1.5.2.7 Parking Garages

One objective for the area is to increase the efficiency of land use and improve the visual environment by reducing the vast expanses of parking lots; this could be achieved in part through the provision of decks or garages. Developers would be offered density bonuses for including parking garage facilities in order to overcome the obstacle of their higher cost. For every car space, an additional 2,000 sq. ft. of commercial development could be allowed, above the maximum permitted floor-to-area ratio (FAR)

1.5.2.8 Measures Needed to Achieve the Objectives of the Mixed Use Alternative

Several management tools could be used to achieve the objectives of this alternative. To manage growth, developer incentives would be offered for contributions, either monetary or in kind, to housing, public transportation improvement, open space, street network and pedestrian bridges. In return, developers would receive density bonuses to build beyond the existing maximum permitted floor-to-area ratio (FAR) of .32.

Within a Planned Unit Development process, density could be increased by special permit above the legal floor-to-area ratio (FAR) of .32 under certain conditions, such as when the development area is designed as a total system in which the street network, transportation lines, and open space are treated as integrated parts of the whole unit. In turn, developers would provide one or more of the following amenities: affordable . open space, transportation improvements, street network :construction and pedestrian bridges. In return for these :contributions developers would receive density bonuses. In order to be eligible to use the Planned Unit Development (PUD) procedure and apply for density bonuses, projects would have to contain a minimum of area.

A more sophisticated approach would employ performance zoning ~ which would establish standards for traffic generation and would allow uses based on the volume of traffic each use generates. Performance zoning is a tool which bases permitted uses on their impacts.

For example, traffic generated by a development will effect roads and services. Using performance related criteria, an incentive program could be established to allow higher on-site building density when traffic generation is minimized and or when transportation improvements are provided.

Yet another approach which could be used combined with the previous ones is the raising of impact fees to cover the cost of street Reworks and/or public transit operation; in turn, density bonuses proportional to the impact fees could be granted to individual developers.

These management tools would help to maintain and control the amount of development, and would help mitigate traffic congestion impacts caused by certain developments. Additional improvements would occur as developers respond to incentives.

1.5.2.9 Coherent public-Private Development

The Town must take a leadership role in establishing the basic frameworks for streets, operating the public transit system, and raising impact fees. It must participate in the negotiations and ensure that the goal of coherent and consistent development among various land owners is achieved .

A public agency could be established to collect and administer developers' fees for public transit, street network, right-of-way easements, and bridges to ensure the efficiency of the process. alternatively, a private association of developers and landowners the Town. would undertake the improvements, in coordination with

Guidelines for the physical amenities would be referred to in the zoning by-law, special permit criteria, and would be outlined in detail in the Master Plan. The Board of Appeals would use the Master Plan in evaluating the special permit application.

Project proposals would be viewed favorably by the Board of Appeals when the project fulfilled the requirements of the Master Plan and integrates properly within the general concept of the area.

Clearly, cooperation between the Towns of Framingham and Natick is a precondition for the success of the plan.

2.0 THE NORTHWEST QUADRANT AND NOBSCOT

2.1 Existing Conditions

2.1.1 Description

Framingham's Northwest Quadrant, which includes largely rural areas and the small village known as Nobscot, is located north of Route 9 and west of Edgell Road. The Quadrant consists of over 4,000 acres of largely hilly terrain and is defined by Framingham's boundaries to the north and west, Pleasant Street to the south, and Edgell Road to the east.

North-south access to the Quadrant from the Downtown is via Grove Street and Edgell Road. Edmands Road is the main east-west access route, transversing the width of the Quadrant; another east-west arteries are Belknap Road and Pleasant Street, which cross the southeast corner of the Quadrant. Edgell Road serves as a border to the south of the Quadrant. The Massachusetts Turnpike crosses the southeast portion of the area, but provides no direct access. The rural quality of the area is reinforced by the scarcity of major roads within the Quadrant itself.

Nobscot is a small center at the intersection of Edgell Road and Edmands Road/ Water Streets, approached by country roads lined with original stone walls. Community residents express the wish to preserve and protect the rural character of this area. Nobscot Center has a small auto-oriented mall which includes shopping facilities.

Population densities are low and incomes high in the Northwest Quadrant compared with the Town as a whole. The median income level in the Northwest Quadrant is 140 percent of the median income level of the Boston Metropolitan Statistical Area, whereas the comparable figure for the Downtown Framingham area is 94 percent of the MSA. Northeast Framingham, which includes Saxonville and the Golden Triangle, has a median income level which is 122 percent of MSA. The large majority of Northwest Quadrant residents, 89 percent, own the homes in which they live.

The primary land use in the Northwest Quadrant is residential. Typically the houses are large and at the high end of the price scale, with new homes ranging in price from between \$200,000 and \$1 million. The houses are built on half to one acre lots.

Of land zoned for residential use, approximately 630 acres are undeveloped (Framingham Planning Department, 1980 estimate). However, the terrain in a large portion of this land is very rocky and hilly, making development difficult and expensive. Land forms in the Quadrant are composed of glacial till deposits and drumlins. Most soils are unsuitable for residential development due to the high costs of excavation. Steep slopes are a problem in several areas, especially north of Edmands Road. Costly stabilization of slopes by grading, retaining walls, or vegetation, would be a necessary prerequisite to development in many areas in order to reduce run-off, erosion, lateral creep or frost heaving.

According to a previous study of the area, the majority, 85 residential percent, of the quadrant is "poorly suited" for development. (Harvard Graduate School of Design 1980) Less than 5 percent of the land in the Northwest is categorized as having 'little or no significant limitation' for residential development. The areas which are more suitable for housing tend to be small and scattered. The largest area, near the center of the quadrant, is roughly 1B acres. Most areas of "good" suitability are about 5 acres in size. About 5 percent of the land in the quadrant is "fairly well" suited for residential development. These areas tend to be somewhat clustered. The remaining areas have severe development problems because of slope, soils, swamps, surface water bodies or bedrock outcrops. For instance, large areas along Edmands Road have fair to poor suitability for development because of steep slopes.

However, the exclusive Doeskin Estates subdivisions, located in one of the Quadrant's most remote and least buildable areas, is evidence that developers are able to overcome difficulties posed by the terrain if the market will pay for site development costs. Targeted at dual-income professional couples, single family houses in Doeskin Estates were advertised at Prices starting at \$400,000 in 1986.

2.1.2 Open Space

The Northeast Quadrant has a significant amount of open land. Some of the open land is public, such as the Nobscot Mountain Summit (117 acres), and Callahan State Park, but a significant amount is privately owned and not accessible to the public. About 15 percent of the Quadrant is Preserved open space. This land represents approximately half of Framingham's total reserved open space. Much of the open space could be converted to recreational uses. The Graduate School of Design study mentioned above, found that over 50 percent of the Quadrant has land which has fair to good suitability for recreational development. Land appropriate for conservation, that is, land poorly suited for active recreation uses and with some conservation value (scenic, wildlife, etc.) seems to be concentrated in the northern regions of the Quadrant.

2.1.3 Roads

As a result of the soil and slope conditions noted above, less than 5 percent of the 1 and is suitable for road construction. The sections which are suitable, are small and are clustered in areas already well serviced by roads. About 75% of the Quadrant's land is "fair" or "poorly suited" for road development. Any further development in the Quadrant, under the current one acre zoning, would necessitate additional road construction and improvements to the existing narrow streets. Soils and slope conditions, of course, would make such construction very costly.

2.1.4 Sewerage System

Sewer lines have been extended to only portions of the Northwest Quadrant. The high cost of sewer extensions due to unsuitable soils, wetness and ledge conditions, in addition to the limited capacity of the Metropolitan sewer facilities, resulted in a 1968 decision on the part of the Town, not to provide public sewer and drainage facilities to the Northwest Quadrant at that time. As the Quadrant was zoned for low-density development, individual septic systems have been adequate thus far and relatively easy to install. The minimum lot size of one acre thus far has provided adequate space for septic disposal, As development continues, occupying less suitable soils, however, sewerage would be required if construction takes place at rates allowed by current zoning. The Town's current policy is to require that developers pay for water and sewer extensions, and recent housing market conditions have made such extensions economically feasible. The Department of Public Works requires developers in the Northwest to extend utility systems as projects are developed, and to size components of the systems so that full development of the area at a one acre density can ultimately be accommodated.

2.1.5 Water Supply

The Northwest Quadrant is located north of the MDC pressure aqueduct. Most of the Quadrant is currently served by the Town's high elevation service system which has a 0.3 million gallon storage tank; this capacity is not enough

to adequately serve the area. There are also significant portions of the area which do not have water mains, and others that are at higher elevations (i.e. Doeskin Estates).

2.2 Zoning

The Northwest Quadrant is zoned primarily for residential use. The smaller center of Nobscot, is zoned almost exclusively for business use.

2.2.1 Northwest Quadrant: Single Residence (R-4) and (R-3)

Most of the Northwest Quadrant is zoned "R-4", that is, for single family residential use, with a minimum lot size of one acre. This results in extremely low densities throughout most of the Quadrant. .

2.2.2 Nobscot

Nobscot, as defined by this study, encompasses some 33 acres of land, upon which there are approximately 196,973 square feet of business development. This development includes a small auto oriented retail mall, and other businesses. General Residence and Residence R-3 complete the land use around this small center.

2.2.2.1 Business

Most of Nobscot is zoned for business, a total of 33 acres. Development in the business zoned area amounts to 196,973 square feet; the floor to area ratio (FAR) is .20. There are about 10 acres of vacant land.

2.2.2.2 Residential (G and R-3)

As mentioned, parcels zoned for General Residential and Residential R-3 are included within the study boundaries for Nobscot; they occupy 19 acres and 28 acres respectively.

2.2.2.3 Non-Conforming Uses

The amount of the total building square footage which is in non-conforming use, that is used for purposes other than that specified by zoning, amounts to about 5 percent of total building space. Thus, zoning designations accurately reflect most existing uses.

TABLE 8: NOBSCOT - LAND USE AND DENSITY

Zoning District	Existing Development		Developed Land Acres	Net Density FAR	Vacant Land		Total Land		Gross Density
	s.f.	%			Acres	%	Acres	%	
Business(B)	196,973		22.2	0.20	10.4	32	32.6		0.14
Gen.Res.(G)	1,218,928		18.6	1.50	0	0	18.6		1.50

2.3 Built Out Analysis

There is considerable capacity for expansion within the Business-zoned land of Nobscot, due to a large degree to the lack of differentiation of the Business Districts in the Zoning By-Law. Thus, this small center could grow to more than double its current development level, adding 250,000 square feet to the existing 200,000 square feet of commercial space. The adjacent General Residential area is fully built, with housing condominiums of considerable density.

TABLE 9: NOBSCOT - BUILD-OUT ANALYSIS

Zoning District	Total Land Acres	legal Density FAR	Gross Density FAR	Addl. Density FAR	Addl. Devel. s.f.	Increase %
Business (B)	32.6	0.32	0.14	0.18	255,610	1.30

2.4 Issues

The major issue facing the Northwest Quadrant is its future development, given the problems of constructing housing due to unsuitability of the rocky, hilly terrain which characterizes the area; and the need to protect and preserve open space, and the area's rural character. In Nobscot, the issue is how to maintain a small town, country-style community.

2.5 Planning Alternatives: Nobscot and the Northwest Quadrant

Three alternatives for development may be considered for the Northwest Quadrant and Nobscot. The first alternative for both is to maintain current zoning and allow development to evolve as it would on its present path. The second, for the Northwest Quadrant, is to cluster development in order to preserve open space. The third alternative, for Nobscot, is to orient it towards a mixed use neighborhood district.

2.5.1 Alternative One: Maintain Current Policy

This alternative involves maintaining the current zoning policy. Development would evolve as zoning would permit, which means the continuous suburbanization in one-acre lots of the Northwest Quadrant. The equivalent floor to area ratio (FAR) in the Business zone in Nobscot is .20; additional development could more than double the current built space.

2.5.1.1 Land use

Land would continue to be used as it is presently. As noted, current policies would allow the Nobscot commercial area to grow substantially in the Business zones to more than twice the amount of existing development. The commercial district could begin to make encroachments on the residential district, and would certainly cause increasing negative impacts. The large scale allowed by the current zoning regulations would seriously affect the character of the residential neighborhoods around the center.

The residential areas of the Northwest Quadrant, in turn, would be extended following the one-acre suburban pattern allowed by the current zoning by-law, seriously threatening the rural character of the area.

2.5.1.2 Transportation and Traffic

Currently, Nobscot and the Northwest Quadrant are auto-oriented. Given that the commercial area could potentially more than double, the stress on the transportation and infrastructure systems could be significant. In addition, the potential expansion of one-acre lot residential areas would require major extensions of the road system, transforming a rural area into another suburban sprawl.

2.5.1.3 Housing

There is a need for affordable housing in the Framingham area which would not be addressed in the Northwest Quadrant under this development alternative. The large lot zoning of half an acre to one acre and the difficult soil conditions would keep costs relatively high, continuing to make housing ownership out of reach for the majority of Framingham residents.

2.5.1.4 Open Space

The Northwest Quadrant enjoys wide expanses of open land. Much of it is privately-owned, underutilized land. Over fifty percent of the Quadrant consists of land which is suitable for conservation and open land preservation. Suburban development would eliminate this potential resource, leading to parceling and site development of the area.

2.5.2 Alternative Two: Open Space Residential District in the Northwest Quadrant

Residents of the Northwest Quadrant have indicated interest in preserving the rural character of the area. The most suitable approach is to cluster development to preserve open space, avoiding suburban sprawl. Cluster development, which allows the grouping of housing units in smaller lots, without increasing overall density, is highly suitable for the Northwest Quadrant.

Unlike many other Massachusetts communities, the Framingham zoning by-law does not permit flexible development, such as an "Open Space Residential" development, in which lot sizes can be reduced on the condition that open space is permanently preserved.

2.5.2.1 Open Space Residential District

This type of housing development permits a specific number of housing units based on the underlying zoning in a specific area. The houses would generally be clustered around or adjacent to open space which is accessible to all the houses and in some cases to the community at large. Open space in clustered areas can not be developed. It is

protected in perpetuity by legal clauses in the zoning by-law. This type of cluster zoning is a tool to achieve more rational development patterns which provides the added benefit of shared open space.

Clustering dwelling units is a valuable land use tool for the Northwest Quadrant because the developable land with suitable soils in this area is found in small pockets which would most efficiently be used by cluster development. It would save blocks of open space rather than insignificant pieces in individual lots.

As mentioned, under an Open Space Residential zoning policy, the same amount of development would be allowed to occur as under current zoning. The density is only as high as underlying zoning district permits. This type of development can promote the rural atmosphere which the community wishes to preserve, by creating "villages" like clusters set within meadows, woods, and open fields.

2.5.2.2 Open Space and Recreation

Open Space could be developed into park land, or preserved as conservation land, and should evolve into a system of recreation lands. Open spaces should be connected to create green belts, recreation trails and similar opportunities for the Northwest Quadrant and the whole Town.

Design guidelines would assure that open space created by this cluster district should be useful and not marginal, becoming part of the recreation system of the neighborhood and/or the Town.

2.5.2.3 Traffic

Cluster developments usually include smaller units which generate less traffic (about 6 trips per day) than do other single family homes (10 trips per day.) The impact on existing roads would be less than other housing developments. In addition, traffic would be restricted to selected areas, leaving rural expanses free from suburban streets.

2.5.3 Alternative Three: Nobscot as a Neighborhood Center

This scenario involves the pursuit of Nobscot as a neighborhood oriented center, with the base being the local stores. The existing enterprises could create a critical mass to attract neighborhood residents. The retail shops would be neighborhood oriented, offering specialized products and services for local residents. The Nobscot center would serve as a cohesive element, unifying the neighborhood in common activities, while providing services and programs close to home.

In order to bring Nobscot to a neighborhood center scale, and to prevent unmanageable growth, it will be necessary to scale down the physical parameters of development, such as height or project size, to a neighborhood level. For example height could be restricted to 3 stories (rather than 6 stories as is currently allowed) and projects could be limited to a maximum of 10,000 square feet. This can be achieved through a proposed new zoning district, Neighborhood Center, which allows small-scale retail, residential and local-oriented offices.

3.0 DOWNTOWN

3.1 Existing Conditions

This report outlines current conditions in land uses, zoning, transportation and housing in the central business district of Framingham, known as Downtown, and presents recommendations for policies and strategies. The boundaries of the area, as defined for this study, include Gordon and Farm Pond and DeLoss Street to the southwest, Claflin, Arlington Streets to the southeast, Grant Street to the east, and Clinton Street and Learned Pond to the north. The heart of Downtown Framingham is located at the intersection of Union Avenue and Concord Street. The main access roads from the north to Downtown are Concord, Franklin and Union, and from the south are Hollis and Irving Streets, while the major east-west road is Waverley.

Learned and Farm Ponds located to the north and west of Town Hall respectively, are amenities for residents and employees. A residential neighborhood surrounds the commercial area. The main users in the downtown area currently include retail stores, municipal government, and professional offices. Most municipal offices are located in the Memorial Building.

Downtown was once the retail center of Framingham. Presently, the area consists of small retail shops which include an army and navy store, services and restaurants. However, competition from nearby regional shopping malls has reduced the viability of Downtown as a major retail center. Many downtown shops provide support services to the medical, professional, and governmental communities which occupy the area; other retail activity appears to be responding favorably to revitalization attempts.

The Downtown was designated as a Commercial Area Revitalization District (CARD). In the CARD plan investment and economic incentives have helped to stimulate revitalization of the area. Several objectives have been set forth in the plan. These include efforts to improve traffic circulation; efficiently utilize the area to provide accessible parking; encourage the rehabilitation of buildings, both commercial and residential; improve some streets and sidewalks; and develop Downtown as a transportation nexus for local buses and commuter buses and trains.

Downtown consists of approximately 16 acres of land, and 489,400 S.F. of building area. Land uses include business uses services, and small retail shops, and government and professional offices, as well as manufacturing uses, including storage and warehouses. A few residential units are in the center, but most residences are on the border of the commercial area. A number of buildings with a business on the first floor, have multiple purposes.

Business is the most significant use. A large share of the economic activity is oriented to satisfy the needs of the municipal government offices and other professional offices. Industrial uses include warehouse distribution and storage of manufactured products and manufacturing operations.

3.2 Zoning

The Downtown area falls into four different zoning districts Business (B); Industrial (M); Professional (P); Residential (R2); and General Residence (G).

3.2.1 Business District (B)

Approximately 7 acres of land are zoned for business purposes representing 41 percent of the total land in Downtown. Building space totals 246,102 square feet in the business zone, or 50 percent of total development in the Downtown area. Downtown is now built up to an equivalent floor to area ratio (FAR) of .87 in this zoning category. There is virtually no vacant land in the Downtown Business zone.

3.2.2 Manufacturing (M)

Approximately 6 acres of land are zoned manufacturing, which represents 40 percent of the Downtown area. There are 115,867 square feet of building area in the district, which represents 24 percent of total building square footage in the downtown area. Vacant land occupies less than one acre of the Manufacturing area, representing P1 percent of the district. The district is built up to an equivalent floor to area ratio (FAR) of .47.

3.2.3 Professional (P)

There is approximately one acre of land zoned Professional, which represents 6 percent of the total land in Downtown. Development consists of 28,529 square feet of building space in the Professional district, or 6 percent of the entire building area in the Downtown. The area is built up to an equivalent floor to area ratio (FAR) of .65.

3.2.4 General Residence (G)

Two acres of land are zoned for General Residence in the downtown area, representing 13 percent of the total Downtown land area. Existing building space amounts to 98,918 S.F. representing 20 percent of the total development in Downtown. The area is built up to an equivalent floor to area ratio (FAR) of 1.38. About one half acre is vacant.

3.2.5 Non-Conforming Uses

Most uses in the Downtown conform to the zoning by-law. While the Downtown has the highest level of non-conforming uses in the Town, about 8 percent of development, relative to many urban areas in other communities, the rate on non-conformance is low. The few non-conforming uses which occur Downtown include offices in a single residence zone, and apartment buildings in the manufacturing zone. The generally low incidence of non-conforming use is due to the wide variety of uses which are allowed in the Town's Business and Manufacturing districts.

TABLE 10: DOWNTOWN - LAND USE AND DENSITY

Zoning District	Existing Development		Developed Land Acres	Net Density FAR	Vacant Land		Total Land		Gross Density FAR
	s.f.	%			Acres	%	Acres	%	
Business (B)	246,102	50	6.5	0.87	0.1	2	6.6	41	0.87
Manuf. (M)	115,867	24	5.7	0.47	0.7	11	6.4	40	0.42
Professional(P)	28,529	6	1.0	.65	0	0	1.0	6	0.65
Subtotal	390,498	80	13.2	0.68	0.8	6	14.0	87	0.64
Resident (G)	98,918	20	1.6	1.38	0.6	27	2.2	13	1.02
Total	489,416	100	14.8	0.76	1.4	9	16.2	100	.69

3.3 Build-Out Analysis

According to the zoning by-law regulations, Downtown has reached and surpassed the threshold of development indicated in the FAR = 0.32. The Business-zoned areas, for example, are developed to an equivalent FAR = 0.87, the Professional ones to a FAR = 0.65, while the Manufacturing-zoned areas have reached a FAR = 0.47. There is no more room for development, in the physical sense of additional construction, in Downtown.

TABLE 11: DOWNTOWN - BUILD-OUT ANALYSIS

Zoning District	Total Land Acres	Legal Density FAR	Gross Density FAR	Additional Density FAR	Additional Development s.f.	Increase %
Business (B)	6.6	0.32	0.07	0	0	
Manuf. (M)	6.4	0.32	0.47	0	0	
Professional(P)	1.0	0.32	0.65	0	0	
Subtotal	14.0	0.32	0.64	0	0	
Resident (G)	2.2	0.32	1.02	0	0	
Total	16.2	0.32	0.69	0	0	

3.4 Issues

There are several issues which present problems for continued economic well-being of the area. These include the decline of economic activity; an insufficient supply convenient parking; and traffic congestion.

3.4.1 Economic Activity

While public and private efforts over the years have resulted in some signs of revitalization of Downtown, disinvestment continues. A large turnover of retail establishments, difficulty renting space quickly, and high vacancy rates of both ground level and upper floors prevail.

A new role must be established for Downtown that reflects a new character and purpose. Fundamental to this new role is the recognition that the area cannot compete with the auto-oriented regional malls. To avoid further economic decline, a specialized role must be established for Downtown.

Besides mall competition, retail activity in Downtown has been affected by a shortage of parking spaces, and by an increasing level of traffic congestion.

3.4.2 Parking

One issue which has threatened to constrain the economic vitality of the area has been the availability and accessibility of parking spaces. The lack of parking presents obstacles to retail customers, and businesses in the area and has become increasingly severe. The supply problem has been accentuated by a shortage of off-street parking spaces in certain critical areas of high parking demand. The lack of sufficient parking has limited the area's potential to prosper.

The parking supply problem is being addressed by the improvement and construction of several parking facilities which include the MBTA and Hollis Court lots, and the recently completed Pearl Street Garage.

The MBTA has opened a temporary 112-space surface parking lot at the southern end of Franklin Street, adjacent to the railway tracks. It is intended for use by patrons of the MBTA's Commuter Rail to Boston until the 350 Terminal Area Development Project described below, is implemented. The MBTA parking lot is convenient to business areas as well as the railroad station. Hours of use are unrestricted and parking is free. The MBTA lot is used to its capacity by all-day commuters who arrive before, customers and clients of downtown most business people, customers and clients enterprises.

The MBTA has plans to construct a 350-space parking lot at the layover facility which is accessible from Park and Pearl Streets. A municipal lot providing 150 spaces is expected to be constructed in the area now used as a temporary commuter parking facility.

The Hollis Court Parking lot is publicly-owned surface parking facility. It is located in the block defined by Waverly and Hollis Streets and Hollis Court. There are 137 parking spaces, properties, and therefore, 48 of which are reserved for abutting 89 are available for general use. Parking at this facility is available for 25 cents an hour.

The opening of the Pearl Street Parking Garage is expected during Fall 1988. It is located at the western edge of the central business district, in the block surrounded by Pearl, Proctor, Franklin, and Park Streets. The garage is a four-story structure which contains 291 parking spaces, 20 of which are to be reserved for the abutting property. Thus, 271 spaces will be available for the general public. The purpose of this garage is to make parking spaces available for employees working in Downtown businesses, the" freeing closer parking spaces for patrons and customers.

The Pearl Street garage and the Hollis Court lot are the only public off-street parking facilities in the downtown area, which are specifically placed to serve the needs of the local businesses. However, there are other parking facilities. A 132-space parking garage located adjacent to the Framingham Public Library at the northern edge of the central business district serves the patrons of the library. A 45-space lot, adjacent to the Memorial Building provides parking for visitors and employees of Town Hall.

In conjunction with these parking facilities, it is anticipated that the Town will re-install parking meters on downtown streets. These meters will help make the most convenient spaces available to shoppers and those with businesses in Downtown, by encouraging turnover and moving long-term parkers to the Garage and the public and private lots.

Currently all-day parkers use the most convenient off-street and on-street spaces. Thus, these spaces are not available for short-term parkers such as customers and clients of downtown businesses. The plans described above will encourage all day parkers to park on fringes of the central business district. A fee structure, consisting of lower hourly fees in these areas will help as well.

3.4.3 Traffic Circulation

Traffic congestion on major streets, especially at peak travel time is so severely constrained that it has become a major concern for the Town's residents. The most critical intersection is that of Concord Street and the railroad tracks, which seriously affects Concord Street and Union Avenue to the north, and Irving, Hollis, and Waverly Streets to the south. Many commuters from neighboring towns to the South travel through the Downtown en route to Route 9 and the Mass. Pike. The situation is further exacerbated by commuter trains stopping at the station and cargo trains stopping at the vehicular intersection, which force the north-south traffic to come to a standstill for several minutes, causing queuing that reaches several blocks in, both directions, especially at commuter travel times.

3.5 Planning Alternatives

The Downtown consists of approximately 16 acres of land area, and 490,000 square feet of building space. As noted, traffic volumes strain the road system, convenient parking spaces are in short supply and revitalization of retail activities is needed. Any development alternative, to be successful, must deal with these economic development, parking and circulation problems. In addition, planning alternatives must provide for other land use components such as open space, and housing. Three alternatives were considered for the Downtown area.

3.5.1 Alternative One Continue with Current Policy

The first alternative is to continue present development policy, allowing Downtown to evolve in its present direction. The consequences of this alternative include continued economic decline in retail, high office vacancy rate, and low commercial and office rents. This situation would be exacerbated by traffic congestion and parking problems.

The likelihood is that the central business district would continue to struggle unsuccessfully to compete with the economically strong regional malls. As residential opportunities in Downtown are limited, and there are few evening attractions or entertainment, the area would continue to vacate when office hours cease.

3.5.2 Alternative Two: Economic Competition with Malls

The second alternative is to attempt to offer services comparable with those of the regional malls and try to compete with them. This would involve developing large department stores which offer services comparable to the nearby malls, and extensive parking areas .

The consequences of this alternative would include increased traffic volume and congestion. The face of Downtown would change from a local retail area to large stores catering to the regional needs rather than specifically neighborhood and local business needs. The provision of substantial parking facilities would require extensive demolition to create large scale parking lots.

Given the Downtown's poor automobile access relative to the Golden Triangle malls, such a policy is not likely to be successful.

3.5.3 Alternative Three: Mixed Use Neighborhood Center

A third, and most reasonable alternative for Downtown, involves tailoring retail activity to the needs of a residential neighborhood and office/ government community, and developing additional housing.

3.5.3.1 Retail and Civic Activities

The central business district must alter its focus to remain economically viable. Given its lack of regional accessibility, it cannot successfully compete with the regional malls. Thus Downtown should be promoted as a specialty retail center providing services which the large stores do not. A base of unique specialty stores already exists and could be built upon. Retail shops would offer more specialization than the department stores in the malls are able to provide convenient neighborhood oriented services. Such stores could include fish and meat markets, a bakery, fruit and vegetable stores, flower shops, general convenience stores, restaurants, hardware stores and hobby/art supply stores.

Existing civic and cultural activities could be expanded, and building on the opportunities offered by the Danforth Museum of Art, cultural activities such as art centers, galleries or could be developed. Some of these could be situated in the large rooms of the Memorial Building, utilizing that building (or others), after hours.

3.5.3.2 Housing

In combination, specialty shops and other neighborhood scale retail businesses, expanded civic and cultural activities and the commuter rail station contribute to encouraging the vital component of a mixed income residential development. Besides providing needed housing, residential development would generate a market for retail and other economic activity downtown, while maintaining 24 hour activity cycles in the area.

Retail and office buildings currently experiencing a vacancy rate of approximately 20 percent could be adapted for multi-use purposes using second and third stories for residential purposes, which would further address the need for a greater supply of housing and expand the market for existing retail businesses. Increased number of residences located in downtown together with specialty stores, restaurants, cultural and recreational opportunities would help to create a critical mass needed for healthy economic activity.

The single-family houses which border the retail area are between 30 and 50 years old, and are less expensive than those in some other areas of Town. Existing houses which border the downtown area could be converted to multi-family dwellings to increase the number of housing units and efficiently utilize space.

At the core of this proposal is the need to rezone Downtown to allow multi-family dwellings, lifting the existing moratorium. Housing in general, and particularly affordable housing in Framingham is a need which must be addressed. Developing affordable housing is one potential new function of the Downtown.

3.5.3.3 Open Space

Farm and Learned Ponds are within convenient walking distance of which should be fully developed into Downtown. These are areas parkland for passive and active use, with paths for biking, walking and jogging around the lakefront, and benches with a view of the pond. The water could be stocked with game fish for recreational fishing, in addition, canoes and rowboats could be made available.

The main streets of Downtown should be landscaped. Tree-lined Union, Concord and Waverly Streets, among others, would improve the visual environment. Street activity could be established by creating areas for dining outside restaurants, and by stores presenting their products on tables under brightly colored awnings.

3.5.3.4 Traffic Circulation

The severe congestion which occurs at peak travel times especially at the railway crossing could be alleviated by additional parking spaces at the MBTA parking lot at the layover facility, perhaps on air rights over the tracks and accessible from Waverly Street. The commuter traffic flow originating from South of Downtown en route to Boston, would go directly to the parking facility, rather than passing through the Town to either try to find parking spaces in the existing commuting lot which is full early in the morning or continue to Route 9 or the Mass. Pike. Travelers to the Logan International Airport, and to the local malls could park there and use shuttle buses to the malls or to the proposed transportation center in the Golden Triangle. This proposal follows the general MBTA policies of improving additional parking facilities at their commuter rail and mass transit stations.

Other circulation improvements could be implemented to ameliorate the traffic situation, such as changes in the traffic patterns, signalization and alternate routes to spread out the flow. Details of these proposed improvements are presented in the Traffic Element of the Master Plan.

3.5.3.5 Parking

To manage public parking spaces and expand the supply, policies now being developed to guide public parking Downtown will help the situation greatly. The Master Plan endorses the policy that on-street parking spaces should be allocated to short-term parkers through appropriate pricing and/or restrictions on length of stay. To implement this policy, the costs and revenues from on-street metered spaces and from each off-street parking facility should be identified. A municipal authority or Town office is to be charged with responsibility for developing, maintaining and evaluating overall cost-effectiveness, and a comprehensive management program for all public off-street parking facilities has to be completed.

The public off-street parking supply should be managed to maintain an occupancy level of 85 percent or less. This would require that off-street parking be expanded, as planned. New development should be accompanied by appropriate increases in parking capacity, or a proportional contribution to the cost of new public capacity required by the development.

The Town should develop and implement mechanisms for financing capital improvements and operating costs for parking facilities. Revisions in the Town's zoning regulations could require that developers capitalize a downtown parking fund as a condition for receiving a special permit exempting them from providing on-site parking facilities.

4.0 FRAMINGHAM CENTER

4.1 Existing Conditions

4.1.1 Description

Framingham Center is a historic town center which dates back to the early 1800's. The Center, as defined by this study, is bounded by the Sudbury River and Edgell Grove Cemetery to the north, by Main Street and the campus of Framingham State College to the south, and by railroad tracks to the west. Route 9 divides the Center, with the historic area and commercial center to the north of Route 9, and Framingham State College and a residential neighborhood to the south. The Common, the library, and two historic churches at the northern part of the Center, are several of the remaining landmarks of an earlier time. Residential areas surround the commercial and institutional users of the Center.

The Center, north of Downtown, is accessible from the south by Union and Franklin Streets, and from the north by Grove Street, Edgell Road, and Central Street. The intersection where Edgell Road crosses over Route 9 is one of the traffic problems of the Town.

4.1.2 Framingham State College

The College is located on a major topographical feature of the Center, the hill south of Route 9. From this vantage point, the College overlooks the northern part of Framingham Center. Approximately 4,000 Boston area students attend the College. Space is at a premium on the campus. In order to expand within current boundaries and minimize neighborhood impacts, the college must build upwards, and make additions to existing structures.

Presently the campus is not a center for student extra-curricular activity, since few recreational and cultural opportunities, such as films, theater, art exhibits, coffee houses, etc. exist on this campus. Greater intensity of land use on the campus would result in increased diversity of uses, and would present more opportunities for learning experiences for the community at large as well as the academic community.

The College is surrounded by a residential neighborhood. The relationship has been strained in the past because of complaints of noise, and college traffic and parking pressures in residential areas.

4.1.3 Commercial Area Revitalization

In 1984, part of Framingham Center was declared a Commercial Area Revitalization District (CARD). This designation spurred on the planned reuse of two Town-owned buildings, Framingham Center Library and Jonathan Maynard School, and has facilitated and furthered economic development which has resulted in the establishment of new businesses in the area.

There are four objectives set forth in the CARD plan: the first, to assist private property owners upgrade their building by providing economic incentives for renovation; second, to improve the public parking supply by creating new off-street parking facilities and new on-street spaces; third, to improve motorist safety by redesigning the roadway along Worcester Road and Pleasant Street; fourth, to improve the image and cohesiveness of Framingham Center by linking the historic Common to the commercial areas and by making improvements such as landscaping, street furniture or lighting. In meeting these objectives, the Town has developed plans to improve safety conditions and to expand the supply of parking spaces.

4.2. Zoning

The total land area of Framingham Center, as defined for this study, is about 127 acres; the total amount of development is approximately 1,309,669 square feet. Zoning districts in the area are Business (B), and Professional (P), in addition to numerous Residential (R-1) parcels.

4.2.1. Business

Almost all of the non-residential areas in Framingham Center, 98 percent, are zoned for business uses. Land zoned for business encompasses 125 acres, and is occupied by 1,290,000 square feet of development, or 98 percent of total building space. The area is built up to an equivalent floor to area ratio (FAR) in the Business zone of .26, a relatively low intensity of development. Most of the area is developed; only 11 acres of land are vacant.

4.2.2. Professional

Approximately 2 acres of land are zoned for Professional use; development amounts to 19,669 square feet. Land zoned Professional amounts to only a small portion -- 2 percent -- of the Center. The area is built to an equivalent FAR of .19, a low intensity of development.

4.2.3. Residential (R-1)

Intertwined within the Center, there are substantial residential areas, 79 acres are zoned for R-1 uses and 37 acres are zoned for R-3 uses. The area is densely built up. Areas immediately adjacent, to the north of the Center, are zoned R-3 and R-4, areas to south are zoned R-1.

TABLE 12: FRAMINGHAM CENTER - LAND USE AND DENSITY

Zoning	Existing	Developed	Net	Vacant	Total	Gross
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District	Development		Land Acres	Density FAR	Land		Land		Density FAR
	s.f.	%			Acres	%	Acres	%	
Business (B)	1,290,000	98	113.9	0.26	10.7	9	124.6	98	0.24
Professional(P)	19,669	2	2.3	0.19	0	0	2.3	2	0.19
Total	1,309,669	100	116.2	0.26	10.7	8	126.9	100	0.24

4.3 Build-Out Analysis

In order to orient this analysis to conclusions relevant to the Master Plan process, residential uses within the Center were not included in the build-out analysis - the assumption is that these parcels will continue under residential use.

There is a potential for additional growth in the order of approximately one-third of the existing development; that is, over 400,000 square feet on top of the existing 1,300,000 square feet. This prospect would not be all that serious if the area were not as congested and environmentally impacted as it is. Under the current by-law, new development could be of such scale as to threaten even more the neighborhood atmosphere and historical qualities of Framingham Center.

TABLE 13: FRAMINGHAM CENTER - BUILD-OUT ANALYSIS

Zoning District	Total Land Acres	Legal Density FAR	Gross Density FAR	Additional Density FAR	Additional Development s.f.	Increase %
Business (B)	124.6	0.32	0.24	0.08	434,206	37
Professional(P)	2.3	0.32	0.19	0.13	13,024	66
Total	126.9	0.32	0.24	0.08	447,230	34

4.4 Issues

Several issues are dominant in Framingham Center, two of them dealing with the relationships of various land uses and the third dealing with circulation. The two land use issues are the apparent contradictions and conflicts between the commercial zone and the adjacent historic area around the Common, and between Framingham State College and the surrounding community. The circulation issue focuses on traffic congestion, safety of pedestrians and the availability of parking spaces.

4.4.1 Cohesion between the commercial area and the historic Common

Improvement of the image of Framingham Center is vital to the economic revitalization of the commercial area. This involves striking a delicate balance between historical preservation and the economic value of commercial activity. The commercial area is now a strip, oriented outward toward the street in front of the commercial block, which faces away from the Common. Commercial buildings, are visually incompatible with the historic structures around the Common.

In order to achieve a balance between preservation and development, renovations and new development of commercial structures should conform to design guidelines that establish coherence with the historic precedents around them.

Landscaping of the parking area and separating the commercial area from the Route 9 Connector Road would improve the visual environment of the Center and create a visual link between the historic Common and the commercial area.

4.4.2 Relationship between the Community and the College

A number of issues characterize the relationship between the College and the surrounding community. The community experience of the campus at present is limited to the increase in traffic and the impact of parking on the neighborhood, and the perceived College encroachment on the community. In addition, College facilities currently remain separate from the community at large, although they could be made accessible to the general public. A positive relationship must be strengthened between the College and the community.

Although enrollment is not expected to increase dramatically, Framingham State College, should expand its current physical facilities by 20 percent to meet State requirements for educational purposes, and the existing needs of

support staff, according to the recently completed College Master Plan. It is expected that College will need to increase its space by 13 percent over the next 5 years, and another 22 percent over the next 15 years.

The neighborhood is concerned about additional dormitories and parking. Students' cars now infringe on surrounding neighborhood. The College planners believe that approximately 300 more parking spaces are needed to absorb the overflow into the adjacent neighborhood. A parking garage structure, on the northern end of the Campus, overlooking Route 9 and Edgell Road, is presently proposed and is awaiting funding.

Positive connections between the College and the commercial district should be encouraged, and opportunities for uses of mutual benefit should be emphasized. Efforts could be directed towards both attracting people from the College to the commercial district, and residents of the community at large, to the College.

4.4.3 Parking and Traffic

Increased parking demand has accompanied growth in Framingham Center, and it may ultimately constrain its economic and commercial growth potential.

The layout of roads has created adverse traffic conditions. The convergence of Edgell Road, Central, Grove, Union and Franklin Streets at one single intersection with Route 9 means that substantial volumes of through traffic -- in addition to local Framingham traffic -- concentrates in a bottleneck, as is discussed in the Transportation Section of the Master Plan. Traffic lights, needed to permit left turns on and off Route 9, cause additional delays with substantial queuing during peak hours.

A number of conditions have contributed to the road hazards in Framingham Center. Poorly defined traffic patterns, and a lack of separation between traffic and parking characterize Pleasant Street and the Route 9 Connector. Of the parking spaces serving the stores on Pleasant Street, 40 of the 90 were unsafe for pedestrians and hazardous for motorists who parked there. Many accidents have occurred along Pleasant Street and the Route 9 Connector at Edgell Road, and Library and Vernon Streets.

The recent revitalization in Framingham Center has encouraged new business to the area, resulting in increased traffic and parking demands. An example is the renovation of the Framingham Center Library to a commercial building.

Measures are being undertaken to alleviate the parking and traffic situation. As noted, under the CARD plan, a parking lot has been designed to physically separate the parking area from street traffic functions. One objective of the separation of parking and the street was to alleviate the safety hazard to those who park in front of the commercial area. The design separated parking on Pleasant Street by rerouting traffic onto the parallel Route 9 Connector Road. Improvements included restriping the previous on-street parking spaces on Library Street and Vernon Street.

In addition, the College Master Plan has addressed the parking and traffic issues in the area of Framingham State College which presently threaten the positive relations between the College and neighbors. Proposals include changes in street patterns to prevent College-bound traffic from moving through residential streets and the construction of a parking garage, with direct access/exit to Route 9.

4.5 Planning Alternatives

Two planning alternatives for development may be considered for Framingham Center. One is to continue with the existing policies. The other is to promote interaction and integration of the historical area, the commercial district, and Framingham State College; and to establish development regulations that are consistent with the area's function as an historically valuable neighborhood center.

4.5.1 Alternative One: Continue with Existing Policies

As noted, existing policy is to allow commercial development at Business district standards (6 story buildings) in most of the Center. Under this policy, large scale development would occur. Further, Framingham Center would continue to have two distinct and poorly integrated parts; the College and the commercial district. Absent design standards, new developments or re-developments in the commercial district would have little relationship to the historic traditions and designs.

4.5.2 Alternative Two: Integration of the Framingham Neighborhood Center

There are several objectives in this alternative. These are to integrate the historical aspects with the commercial uses, to link the north and south sides of Framingham Center which are bisected by Route 9, to strengthen the vitality and identity of the commercial area by establishing a neighborhood district, while controlling undesirable growth, and to improve the relationship of the neighborhood with Framingham State College.

4.5.2.1 Neighborhood Center District

Framingham Center is primarily zoned for business although, as noted, this classification does not distinguish between hierarchies of business districts, either regional or neighborhood. This alternative includes bringing the classification of the new zone in scale with the existing uses of the Center which should serve the surrounding neighborhood, with only a minor orientation to the regional market. The Center would continue to be a vital commercial district with small specialty stores and student-oriented shop and services as well.

4.5.2.2 Integration of North and South Sides of Route 9

In order to attain the objective of integration and improved relations between the College and the commercial area, a better pedestrian connection should be provided over Route 9, which would allow not only students but also neighbors on the south side to easily cross to the north side. The student market could be attracted to the commercial district by developing more

College activities on the north side such as pubs, student stores, College facilities and pedestrian access. This could be achieved by widening the existing bridge with pedestrian sidewalks and by planting landscaped buffers.

This could also be achieved with a more ambitious covered, weather protected Pedestrian footbridge between the Campus and the commercial center, which could be sized to incorporate some academic, community and business uses. Small commercial enterprises and offices could exist on the bridge and generate economic activity. The bridge could also provide space for cultural and other college activities for both students and community alike. This option requires the use of air rights over Route 9 and the State DPW agreement.

Clearly, in either option, the bridge would help to bring students and other residents on the south side in contact with each other, bring more business to the Center from the south side of Route 9, and increase the range of activities readily available to the campus community.

4.5.2.3 Historic Commercial Center

In the implementation of this alternative, the historic Common ground would be treated as the focal point of community activity as it was in the past. For example, street furniture could be placed on streets to face the Common. Flower pots and shrubbery could be planted along streets encircling the Common which would create a visual link to the greenery of the Common.

The architecture of new developments in the Center should be designed to reflect the history of the area. The historical quality of the area should be preserved, while allowing development to occur, as has been done by many other towns.

4.5.2.4 Parking and Circulation

A parking program has been established in the commercial area, as mentioned, through the provision of State and local funds, a plan to reorganize the street pattern and separate roadway from parking areas which promises to alleviate some of the problems. Traffic circulation through the commercial area will be improved, and traffic hazards to pedestrians will be eliminated.

To alleviate College traffic in the adjacent residential neighborhood, State Street, which goes through the College could be closed at the southern end of the campus, preventing college traffic from entering residential streets. A ring-road around the Campus, proposed in the recently presented Framingham State College Master Plan would link up with Main Street connecting with Route 9. Such a road would reduce traffic impacts on the surrounding neighborhood. The closing of State Street would also benefit the campus by allowing a pedestrian environment to be fostered, enhancing the campus atmosphere.

Student parking demand would be better satisfied through the construction of a parking garage proposed in the Framingham State College Master Plan. This garage, located in the northern part of the campus should be designed

with as much direct access to Route 9 as possible. Remote parking lots and shuttle buses appear to be less promising.

Traffic congestion at the intersection of Edgell Road and Route 9 demand solutions at two levels. The most structural approach is to control regional traffic flows, which imply measures beyond the scope of the Town to implement. The most direct approaches involve various levels of intersection redesign, traffic rerouting, and signalization-- which are detailed in the Transportation Element of the Plan. The implementation of any or all of these remedies does not mean that the Town should not press for a regional solution to the many traffic problems imposed on the Town by an automobile-based, dispersed distribution of residences and economic activities.

4.5.2.5 Open Space

Much of the available open space in Framingham Center is on the Campus of the college. The green space of the Campus could be used by the community at large as well as the students and faculty for passive recreational use. The use of all College facilities by the neighbors should be encouraged, and could help develop a mutually interdependent and respectful relationship.

The historic Common on the north side is the only open space that area enjoys. Street activity and furniture could be oriented towards the Common to enable people to appreciate the green space from the street as well as walking through or sitting in the Common.

5.0 SAXONVILLE

5.1. Existing Conditions

Saxonville is located in the north eastern quadrant of Framingham. Its northern boundary is the Town of Wayland Little Farms Road; Pinecrest Road, is the eastern boundary; the Massachusetts Turnpike is to the south; and Lowther Road, Sudbury River and Norton's Pond are to the west. The major roads leading to Saxonville are Central and Concord Streets and Pinecrest Road from the south; Elm Street from the north; Water Street from the west; and Danforth Street from the east.

Saxonville is a historic area of Town with a 1880's period mill complex, still in working condition, and the original Town Hall. Other storefront buildings, also of that era, are in use. The existing building stock has historic and aesthetic value. The mill, which sits on the edge of the Sudbury River, is a large complex with varied height levels construction of brick masonry with wood and cast iron. It is a beautiful addition to this part of Framingham contributing to the historic character of Saxonville, and should be protected and reused, as have mills in many other New England towns.

The area includes part of the most valuable wetland area in Framingham, the Sudbury River system. Among other assets area waterfall, and open space near the high school.

The area is used mainly for business, manufacturing and residential purposes. Some buildings are underutilized. Non-residential uses include sand and gravel pits, warehousing and storage, research and development, some small retail enterprises, and a restaurant. A small strip shopping mall built in the 1950s off of Water Street consists of retail stores and a health club. The sand and gravel pits are located in the north eastern part of the area, along the Sudbury River near the Wayland border.

5.2 Zoning

The area is zoned variously for business, 'B'; manufacturing, 'M'; a small General Residential 'G' area, a Planned Reuse District 'PRD' and single family residential, 'R-1'.

5.2.1 Business

Land zoned Business, located at the intersection of Elm, Danforth, Water, Central Street, and the Spbury River; and on School Street and Concord Street, occupies 51 acres, which represents 22 percent of the non-residential land area in Saxonville. There are 1,005,605 s.f. of building space in the business zone which represents 77 percent of the non-residential building square footage in the area. The overall business zoned area is built up to an equivalent floor to area ratio (FAR) of 0.47. This figure indicates that developed areas have been built at a relatively moderate intensity, since some vacant land approximately 2 acres of Business-zoned lap) exists.

5.2.2 Manufacturing

The manufacturing zone is located in three areas: abutting the Boston and Albany railroad; on both sides of Concord Street south of the main intersection; and a large area at the north side of Saxonville, south of the Spbury River. There are 179 acres of lard in this zone, and 295,406 s.f. of building space. These figures represent 78 ap 23 percent of the non-residential lard area and development respectively. The area is built up to an equivalent floor to area ratio (FAR) of 0.39. Fully 90 percent of the land zoned manufacturing, or approximately 162 acres, are vacant, indicating considerable developable lard remains in the zone. Prominent, among others, are the holdings of the New England Sand and Gravel Company. Some manufacturing uses extend beyond the district study boundaries.

5.2.3 Single Residential (R-1)

Residentially zoned land, located on both sides of the Manufacturing and Business districts , occupies 204 acres. About 74 acres of land are vacant in the R-1 zone, including areas adjacent to the sand and gravel pits.

5.2.4 General Residential

General Residential consists of a small area set between Business, Manufacturing, and R-1 Districts.

TABLE 14: SAXONVILLE, LAND USE AND DENSITY

Zoning District	Existing Development		Developed Land		Net Density FAR	Vacant Land		Total Land		Gross Density FAR
	s.f.	%	Acres	%		Acres	%	Acres	%	
Business (B)	1,005,605	77	49.0	74	0.47	2.3	4	51.3	22	0.45
Manuf. (M)	295,486	23	17.3	26	0.39	162.1	90	179.4	78	0.04
Subtotal	1,301,011	100	66.3	100	0.45	164.4	71	230.7	100	0.13
Resident (R-1)			130.1			74.5		204.6		
Total			196.4			238.9		435.3		

5.3 Build -Out Analysis

The extensive amount of Manufacturing-zoned vacant land shows the extent of its potential impact. If all these areas are built- out, more than 2 million square feet of commercial development could be phased in Saxonville. In reality, several acres of wetlands include in this district would eventually be deducted. On the other hand, adjacent residentially-zoned vacant land under the same ownership could be included in a commercial development, if they form part of a larger lot: zoned for manufacturing. Thus, acknowledging variations in the final amount of actual development, the fact remains that there is a potential for a huge increase of large-scale commercial projects in the vacant manufacturing land.

The Business-zoned land is already built above the permitted FAR. The only possibilities here are reuse, redevelopment, and rehabilitation.

TABLE 15 SAXONVILLE: BUILD-OUT ANALYSIS

Zoning District	Total Land Acres	Legal Density FAR	Gross Density FAR	Additional Density FAR	Additional Development s.f.	Increase %
Business (B)	51.3	0.32	0.45	0	0	0
Manuf. (M)	179.4	0.32	0.04	0.28	2,188,106	740
Total	230.7	0.32	0.13	0.19*/0.22*	2,188,106	168

Note: * Additional FAR for the whole area is distorted by the higher than allowed FAR in the Business District.

** Actual additional FAR is the result of build-out of the Manufacturing district, without reductions in the Business FAR.

5.4 Issues

Issues which concern Saxonville include general underutilization, as reflected by low-end retail activity and substantial amounts of vacant land; and need for guidelines and policies for future development of the area's vacant land and buildings; the need to protect the abundance of open space and wetlands and to encourage its use for recreation; and finally, amelioration of traffic problems at key intersections.

5.4.1 Underutilized Buildings

Existing retail activity consists of discount products, such as carpet mill ends, which are not profit generators. The retail component is not neighborhood-oriented, but rather reflects the area's past industrial use. Store buildings have a relatively dilapidated appearance, and appear to be underutilized.

Further, a number of the commercial buildings, including large and small historic buildings, as well as some newer ones, are vacant or underutilized. This vacant space represents a resource to provide space for housing, neighborhood services, offices and stores. In particular, housing for the elderly is needed in Saxonville, according to statements of residents.

Of particular note is the underutilization of the large historic mill, which might be redeveloped for a mixed income, mixed use. Other underutilized buildings, such as upper stories above retail, could be used for housing.

5.4.2 Vacant Land

A considerable amount of land is vacant. As noted above, 162 acres, or 90 percent of the manufacturing-zoned land is underutilized developed. The key parcels are the holdings of New England Sand and Gravel, which, given the uses permitted by the Manufacturing District, could face the development of, let us say, several hundreds of thousands of square feet of office buildings, with the corresponding traffic and environmental impact. An important issue for Saxonville is the future of this vacant land.

In the Business zone, there are 2 acres of vacant land, representing 4 percent of the Business zone. In addition, the Single Residential zone has over 74 acres of land which is vacant. Development policies for the use of the vacant land must be established.

5.4.3 Open Space

Saxonville boasts large areas of open spaces, most of which is located in wetlands and floodplains of the Sudbury River, and a waterfall. Other parcels of open space are located adjacent to the high school and the cemetery. The community is concerned not only about effective protection and conservation of the open space and wetlands in the face of potential development, but also their linkage in a recreation system. They are a natural resource which represent an asset to the neighborhood.

5.4.4 Traffic

A final issue on Saxonville relates to congestion on Concord, Central, Elm, and Danforth Street intersections in the Saxonville area. These issues are fully described in the Transportation Section. For example, a management improvement such as the retiming of traffic signals will reduce the congestion problems and improve traffic flows with no investment.

5.5 Planning Alternatives

Two planning alternatives for Saxonville can be considered. One is to maintain current zoning policy. Under this policy, a wide variety of development could occur in the manufacturing and business districts, including large scale projects such as shopping centers and office buildings. However, no multi-family development would be allowed. A second alternative is to encourage the establishment of a neighborhood center through rezoning of the center of Saxonville to permit limited mixed use development around retail, housing and other compatible neighborhood uses.

A new Neighborhood Center district could be established which permits uses compatible with a small neighborhood center. Such a district would establish a distinction between neighborhood centers and other Business districts. Permitted uses in the Neighborhood Center zone should be more restricted than the regular Business district, preserving the character and neighborhood quality of small-scale commercial districts such that of Saxonville.

The large holdings of New England Sand and Gravel, more than 170 acres to the northeast of Saxonville center, most of it zoned for Manufacturing use, are a major factor in defining the future of Saxonville. Under the first alternative of maintaining current zoning policies, a major commercial development - such as office buildings - could occur. Under the second alternative of assuring that Saxonville would be a Neighborhood Center, these lands would be rezoned Residential.

5.5.1. Alternative One: Maintain Current Zoning Policy

With the alternative of maintaining current zoning policy, given the amount of vacant land adjacent to the center, large scale developments could ultimately be expected. These development would not be consistent with the existing scale of the area. The impacts of such developments could overwhelm the historic quality which currently characterizes the area.

5.5.1.1 Traffic Impact

Concentrating on the largest potentially developable land in Saxonville - the Sand and Gravel property - after deducting the wetlands area, they could generate a major development. Under the current zoning by-law, office complexes, for example, could be built in manufacturing-zoned land, among other uses; the current floor-to-area ratio (FAR) is 0.32. This means that many hundreds of thousands of commercial square feet could be eventually developed, which would make Saxonville second only to 128 the Golden Triangle/Route 9 Corridor in importance as a business center in Framingham. The traffic impact generated by thousands of employees on Danforth, Concord, and other local streets would greatly aggravate an already congested system, wholly unsuitable within a residential community.

5.5.1.2 Environmental and Historic Impact

The location of major business developments next to a residential neighborhood and adjacent to Saxonville Center would bring a major disruption in building scale, appearance of large parking lots, and radically different visual qualities.

5.5.2. Alternative Two: Neighborhood Center with Mixed Uses

This alternative involves converting the underutilized buildings to mixed use, including housing development of mixed income and elderly housing, small neighborhood offices, retail, and recreation. The scale of development would be suitable for a neighborhood center comprising neighborhood-scale retail establishments of not more than three stories. Such development could be shaped by a proposed new zoning district which allows small-scale retail, residential, and neighborhood office activities. The Manufacturing district to the northeast of the center should be rezoned Single Family R-1 - the same district as the neighborhoods to its south. In addition, the already mentioned 'Open Space Residential' overlay district should be encouraged in this area, in order to conserve some of the existing unbuilt space that is not under the Wetlands Protection Act.

5.5.2.1 Traffic Impact

Based on the underlying R-1 density, several hundreds of single family dwelling units could be built on the Sand and Gravel property, which would generate approximately one-tenth the number of trips at peak time than the business option.

5.5.2.2 Open Space

There are several large portions of open land. vacant land in this area, that are not officially classified as open space. These include the area by the mill along the Sudbury River, near the high school, and the areas around the Sand and Gravel pits. Much of the open space in Saxonville is wetlands 1 and the mill is actually in the floodplain zone. The open space should be conserved and protected from development. Some vacant land should become open space parkland.

There are legal devices to further protect wetlands and floodplains, in addition to the Wetlands protection Act. Some mechanisms include designating open space and wetlands as Areas of Critical Environmental Concern (ACEC), another is instituting a Land Bank to preserve these lands. In addition, the Town should establish policies for encouraging individuals and the Town to acquire open space land for the purposes of conservation.

Probably the most important effect would be felt if the vacant land is developed following an 'Open Space Residential district. The minimum lot of the R-1 district (8,000 square feet) should, without increasing the number of dwelling units, be reduced to 8,000 square feet to allow the other 3,000 square feet to be consolidated in a common open space. This could generate 45 to 60 acres of new dedicated open space, at no cost to the Town.

The impact of this neighborhood-scale, mixed use development on open space could be far more positive and less intrusive than larger office or commercial projects. In addition, public access to the River could be facilitated more easily with neighborhood oriented development, than with larger scale projects.

6.0 SOUTH SIDE

6.1 Existing Conditions

The South Side Industrial area lies in the southern part of Framingham. Roughly, the area is bounded by Arthur/Bishop/Pond and Grant Streets to the north; the New York/ New Hampshire and Hartford Railroad tracks to the northeast; the Town of Sherborn border to the south; and the Boston C Albany Railroad (Milford branch) tracks to the west. Major access routes are Concord Street from the north, Irving /Merchant Road and Irving Drive/Western Avenue from the south, West Central Street from the west, and Waverly Street from the east.

The area is an older part of Framingham. It has two significant facilities: the General Motors plant, and M.C.I. Framingham, a state correctional institution. There are also dense neighborhoods of one, two, and three family homes. There are some wetlands and brooks; Waushakum Pond is immediately to the west of the area. Heavy truck traffic which affects surrounding streets is associated with the manufacturing plants in the area.

In the past, this area was largely used for industrial and manufacturing purposes. The role of the South Side is changing, as reflected by high vacancy rates of manufacturing land and buildings, and numerous "For Sale" signs. Access to rail lines made the area traditionally suitable for industrial use. Newer industries, however, do not rely on rail, and require good highway access for trucks. Highway access for trucks in the South side is not good. The General Motors plant, the dominant employer in the area, has been closed several times in the last few years, and its future is uncertain. In recent years, housing projects have been developed in traditional manufacturing areas, reflecting the market for housing as well as the decline in the manufacturing industry.

The area can be characterized as mixed use, although manufacturing and general residential uses dominate. In addition to the General Motors plant are many other industrial uses. These include storage buildings for warehouse and distribution facilities, trucking areas, buildings for manufacturing processes, warehouses for the storage of manufactured products, office buildings associated with manufacturing operations, and developable vacant land which is accessory to an industrial property. In addition are multiple use (primarily residential) buildings, several 8-plus unit apartment buildings, some retail such as supermarkets and automotive shops, parking lots, and an electrical generation plant.

6.2 Zoning

The zoning districts in this area include Manufacturing (M)1 Business (B) and General Residence (G).

6.2.1 Manufacturing (M)

As noted, manufacturing was the primary use in the past with 380 acres of Manufacturing-zoned land and 3,444,791 square feet of industrial/warehousing space. This land use has decreased in recent years leaving many industrial

buildings and 30 acres of land vacant. Still, the overwhelming land use is manufacturing; this District is built to an equivalent floor to area ratio (FAR) of .23. The zoning by-law does not reflect this shift from manufacturing to other uses in industrially zoned areas.

6.2.2 Business (B)

There is a thin strip of 5 acres of Business-zoned land along the Boston and Albany RR tracks, with 39,104 square feet of development space. Approximately one acre is vacant.

6.2.3 General Residential

Inter-mixed with manufacturing land, there are substantial zones, about 60 acres, of General Residential housing neighborhoods, which extend to the Ashland, Sherborn, and Natick borders. It is a densely packed pattern of single, two and three family homes, without vacant land.

TABLE 16: SOUTH SIDE - LAND USE AND DENSITY

Zoning District	Existing Development		Developed Land Acres	Net Density FAR	Vacant Land		Total Land		Gross Density FAR
	s.f.	%			Acres	%	Acres	%	
Manuf. (M)	3,444,791	99	350	0.23	30	8	380	99	0.21
Business(B)	39,104	1	4	0.22	1	20	5	1	0.18
Total	3,483,895	100	354	0.23	31	8	385	100	0.24

6.3 Build Out Analysis

A statistical interpretation of the build-out analysis indicates that the predominantly Manufacturing-zoned areas of the South Side could face further growth, equivalent to more than half the amount of existing development.

However, the decline of the manufacturing sector and the unlikely location of business uses in the area suggest that a non-residential build-out of the South Side is not foreseeable.

On the other hand, the pressure exerted by housing to expand indicates that the area would evolve into predominantly residential neighborhoods .

TABLE 17: SOUTH SIDE - BUILD-OUT ANALYSIS

Zoning District	Total Land Acres	Legal Density FAR	Gross Density FAR	Additional Density FAR	Additional Development s.f.	Increase %
Manuf (M)	380	0.32	0.21	0.11	1,820,808	53
Business (B)	5	0.32	0.18	0.14	30,492	78
Total	385	0.32	0.21	0.11	1,851,300	53

6.4. Issues

Most of the specific problems found in the South Side are related to a profound change taking place in the region, involving a shrinkage of the manufacturing sector and an expansion of housing demand .

6.4.1 Changing Role of the Area

The South Side Industrial area has significant amounts of underutilized industrially-zoned land due to a decline in the Town's older manufacturing industries. At the same time, the demand for residential land has increased throughout the region and the Town. This is reflected in the South Side by the number of variances that have been granted for residential uses in industrial districts .

The zoning by-law should facilitate change in the area from manufacturing to residential, particularly since the Town's potential for economic development in other sections, such as the Golden Triangle, is great. Rezoning certain manufacturing areas to Single and General Residential is appropriate.

Some land formerly used for manufacturing, has been contaminated by on-site disposal of hazardous materials and may need to be cleaned or contained in order to allow residential development.

6.4.2 Traffic Intrusion

The area's residential environment is affected by commuters, particularly on Waverly, Hollis, Loring, and Irving Streets, as well as by trucking to and from General Motors, and other manufacturing operations, storage facilities and warehouses.

Northbound commuter traffic must cross the Boston and Albany RR tracks at the Concord Street interchange, which contributes a true bottleneck for traffic.

6.4.3. Potential for Housing

As mentioned, the South Side district is the location of the most affordable housing stock Framingham, which are typically 2- and 3-family dwellings and on small lots. The existing building stock could be upgraded, rehabilitated and in some cases, remodeled for housing uses, but the Town will need programs to assure low and moderate income families will not be forced out of the neighborhood due to higher rents. Some of the vacant land underutilized land could be utilized for the development of mixed income housing neighborhoods, including rezoning part of the manufacturing land to residential, as mentioned before.

6.5 Alternatives for Development

Two alternatives for development may be considered. The first is to maintain current policy, which reflects the past use of the area as primarily a manufacturing district. As noted, these uses have reduced importance today. The second alternative is to change certain manufacturing districts to residential districts, in order to facilitate residential development. This alternative requires the identification of specific areas which should be retained as manufacturing uses.

Appropriate areas would be designated for either manufacturing or residential use, to reflect suitability. Some areas should be maintained for manufacturing uses, such as the area of General Motors, and other industrial areas which continue to be used efficiently and appropriately for manufacturing. Land zoned for manufacturing could be consolidated, such as that along the railroad and established locations, thus established a core of manufacturing uses. Areas presently used for housing but zoned for manufacturing should be rezoned to residential. Residential areas would be defined around manufacturing zones. Buffers to protect residential areas from impacts of manufacturing uses would be put in place.

6.5.1 Alternative One: Maintain Current Policy

The current zoning policy reflects, as mentioned, the past use of the South Side as primarily a manufacturing zone. The effects of maintaining present zoning would be the continued underutilization of some vacant land. Application for use variances to develop housing would continue.

6.5.2 Alternative Two: Re-Zone To Reflect Existing Uses and Encourage Residential Development

Housing developments are being built on land which is zoned for manufacturing. As existing zoning does not reflect either current land use or future trends, zoning districts should be changed to reflect and guide the pattern of land uses in the South Side.

6.5.2.1 Housing

Under this alternative, the development of housing would be facilitated; given the characteristics of the area, this could likely mean a considerable increase in the number of affordable units. The 1,2 and 3-family home pattern should be continued.

6.5.2.2 Open Space

The open spaces adjacent to Waushakum Pond, Beaverdam and Course Brooks, and the wetlands in the area, could all be better used for passive and active recreational purposes.

6.5.2.3 Traffic

Changing from an underutilized industrial area to a residential area might result in the generation of more automobile traffic. However, traffic flow could be maintained within major streets to avoid excessive disruption of residential areas by vehicular movement.

Appendix: Statistical Analysis of Zoning Districts in Each Area

Methodology

The methodology for the statistical analysis of the land zoned in Framingham involved:

Source of Information

Information from the Framingham Assessors Office was the prime source used for the statistical analysis. The Assessors' Office supplied the number of square feet of each building and parcel, The uses were evaluated for conformity to the applicable zoning designation, In addition, windshield surveys were undertaken to verify and support statistical information.

Identifying Key Geographical Areas

The Town was divided into six key geographical areas by the Planning Department:

- Downtown Framingham
- Center Golden Triangle
- Nobscot
- Saxonville
- South Side

Finding the Land Acreage, Building Square Footage, Percentage of each area

"Land Acreage" was found by adding the area of the parcels in each zoning district, The "Building Square Footage" was arrived at by adding the square footage of the building areas in each zoning district. The percentage of the total acreage and square feet represented by land area and building space in each district was calculated.

Finding Vacant Land Acreage and Percentage

Vacant land was found by adding the land area of parcels that appear unbuilt (without structures or users) in each zoning district.

Arriving at the actual FAR

The Actual FAR (floor to area ratio) representative of current development was estimated by calculating the ratio of building area to land area for each zoning district and for the total area.

Uses

This analysis includes all uses permitted by the Zoning by-law as well as non-conforming uses, that is existing uses not permitted by the Zoning Ordinance.

SECTION III: TRANSPORTATION COMPONENT

1.0 LOCAL ROADS BASELINE STUDY

1.1 Introduction

1.1.1 Project Overview

The following report has been prepared as the Transportation Component of the Framingham Comprehensive Plan - Phase I, describing the existing operating conditions and deficiencies within the study area. The areas under evaluation and their critical intersections are illustrated in Figure No. 1 - Study Areas.

Historical information pertinent to the study area has been researched, and updated traffic volume data has been collected at key locations to determine existing daily and peak hour traffic volumes.

A detailed description of each of these work activities is as follows:

Engineering Research and Data Collection

The initial work efforts consisted of the collection and review of available documented data, plans and other materials pertaining to the project intersections, conducting traffic count updates, and performing necessary field reconnaissance to develop base plans of the existing roadway features; within the study areas. The base plans were developed with sufficient detail suitable for study purposes and conceptual design during subsequent phases of this project.

Available traffic counts undertaken by the MDPW and accumulated for the ongoing Route 9 Corridor Planning Study, as well as related studies for the Golden Triangle development area were obtained from Central Planning staff and utilized in the development of the existing operating conditions for each of the related study areas. Copies of this data is contained in Appendix A.

In order to accurately evaluate the current and future operational deficiencies in the project areas, the existing available traffic data was supplemented by conducting an automatic and manual traffic counting program, and performing a comparison of relative information for key project intersections.

Although the distinction between local traffic and thru traffic was indicated as a consideration in the overall analysis, extensive manpower efforts required to conduct an origin and destination study encompassing the entire project area to determine such a distinction was beyond the existing budgetary limits. Therefore, in recognition of this constraint, data collection efforts were intended to develop an existing circulation pattern containing existing traffic volume information that could be modified at a future date should means become available for a more extensive traffic survey.

A series of automatic recorder and manual traffic counts were conducted at each of the locations listed below, in order to depict existing traffic conditions and assess required improvements to the roadway network. Automatic recorder counts were conducted over a forty-eight hour period during a typical week day at each of the following locations:

Downtown Framingham

- Waverly Street (Route 135)..... East and Westbound
- Hollis Street..... Northbound
- Concord Street..... Southbound
- Union Street Southbound
- Lincoln Street East and Westbound

Framingham Center

- Main Street Northbound
- Edgell Road Southbound

Nobscot

- Edmands Road Eastbound
- Water Street..... Westbound
- Edgell Road..... North and Southbound

Saxonville

- Danforth Street..... Westbound
- Central Street..... Eastbound
- Elm Street..... Southbound
- Concord Street..... Northbound

Manual turning movement counts were also performed during AM, Noon (Downtown Framingham only) and PM peak hours at each of the following locations.

Downtown Framingham

- Waverly Street (Route 135)/Hollis Street (Route 126)
- Concord Street/Union Street
- Concord Street/Lincoln Street
- Union Street/Lincoln Street
- Union Street/Lexington Street
- Lincoln Street/Lexington Street

Framingham Center

- Central Street(Route 126)/Worcester Road On/Off Ramps
- Union Street (Route 126)/Worcester Road On/Off Ramps

Nobscot

- Edgell Road/Edmands Street/Water Street

The Golden Triangle

- Cochituate Road (Route 30)/Beacon Street

Manual counts for the Saxonville area were not conducted at this time since counts taken by Storch Engineers in 1986 and used in the design revisions to the traffic signals at that location were considered applicable. This assembled data was utilized to identify the current traffic patterns in the project area, and establish roadway classifications by function and volume. Comparison to previous data was made in order to determine increases in traffic demands or operational trends through the project area.

Field reconnaissance was also conducted in the project areas to inventory any traffic control features and regulations for inclusion in part of the existing conditions analyses.

Analysis of Existing Traffic Conditions

Using collected traffic volume data, combined with AM and PM peak hour volumes, an existing traffic flow network was established. The existing operating conditions of this traffic Flow Network was subsequently evaluated via a Capacity Analysis and Level of Service determination. The existing traffic volume levels were further used to develop a design hour traffic flow network appropriate for use in the development and analysis of alternative plan developments in subsequent study phases.

The accident data was analyzed to establish the existence of any prevailing accident patterns and to determine possible corrective measurements necessary to eliminate the causes attributing to those patterns. As part of the existing conditions analysis, the proposed local and State improvement projects currently under consideration were reviewed and evaluated in terms of impacts within the study areas. The physical characteristics of each of the project intersections located in the study areas, including a description of existing operating conditions are detailed in Section 3.0 ' Analyses of Existing Traffic Conditions and summarized in Section 4.0 - Summary of Existing Baseline Conditions.

Definition of Terms

In order to clarify the meaning of certain specialized traffic engineering terms used in this report, the following definitions are offered:

Stopping Sight Distance is the length of roadway ahead visible to the driver. The minimum sight distance available on a roadway should be sufficiently long to enable a vehicle traveling at or near the design speed to stop before reaching a stationary object in its path.

Capacity and Level of Service (LOS) are terms utilized to describe the ability of a roadway to handle the volume of traffic that it carries.

Level of Service is a measure of the quality of flow and overall congestion on a particular section of road or at a specific intersection. Level of Service are generally defined in the Highway Capacity Manual as follows:

LEVEL OF SERVICE RATINGS

RATING	DESCRIPTION	TRAFFIC
A	Free Flow	Drivers feel no restriction
B	Stable Flow	Drivers feel some restriction
C	Stable Flow	Drivers somewhat restricted but not objectively so.
D	Approaching	Increasing restriction and Unstable Flow congestion
E	Capacity	Substantial restrictions and delays
F	Forced Flow	Jammed conditions, extreme delays

Intersection delay criteria have been established by the 1985 Highway Capacity Manual, Special Report 209 in order to measure Level of Service at Signalized and unsignalized intersections. The following table outlines the criteria for each condition:

LEVEL OF SERVICE CRITERIA - INTERSECTIONS

Rating	Signalized Stopped Delay Per Vehicle (sec)	Unsignalized Reserve Capacity (Passenger Cars Per Hour)
A	5.0 or Less	400 or More
B	5.1 to 15.0	300 - 399
C	15.1 to 25.0	200 - 299
D	25.1 to 40.0	100 - 199
E	40.1 to 60.0	0 - 99
F	Greater than 60.0	0

1.2 Engineering Research And Data Collection

1.2.1 Existing Road Network

The existing network of major roadways in the Town of Framingham has been illustrated on Figure 2, and indicates key traffic elements such as the location of signalized intersections, traffic control devices, and the number of traveled lanes along each road segment.

1.2.2. Traffic Volumes

Automatic recorder counts for the study area were undertaken on typical weekdays during the months of January and February, 1988. A review of (historical monthly traffic data for Route 9 in Framingham indicates that volumes-occurring during the months of January and February are generally representative of average annual conditions. Furthermore, previous traffic counts taken by the MDPW in September, 1985 were found to match the January, 1988 counts along Union Street and accordingly have been included as representative supplementary data.

Results of the automatic count data collected has been summarized as the Existing Baseline Condition and illustrated on Figure 3 - Road Network volume. Detailed automatic count data is included in Appendix A.

Manual turning movement counts Here taken at each of the project intersections during peak hours of typical weekday hour periods in the month of January, 1988. In addition, pedestrian counts were taken on Tuesday, January 19, 1988 during the AM, Noon and PM peak hour periods at the intersection of Union Street and Concord Street in

Downtown Framingham. The manual data has been included in Appendix B and has been summarized for AM Peak, Noon Peak (for Downtown Framingham), and PM Peak hour in Figures 4, 5 and 6 respectively.

1.2.3 Accident History

The accident history for each of the project intersections has been researched and symbolically plotted on the collision diagrams included in Appendix C. The following Table 1 summarizes the accident experience at these locations.

TABLE 18: SUMMARY OF ACCIDENT EXPERIENCE IN FRAMINGHAM

Intersection	# Accidents Per Year	Rate*
Edgell Rd. at Edmands Rd./Water St.	4.6	0.53
Route 9 Ramp at Edgell Rd. & Main St.	.3	0.20
Cochituate Rd. at Beacon Street	3.3	0.48
Cochituate Rd. at Speen Street	10.7	0.70
Concord Street at Lincoln Street	2.3	0.23
Lincoln Street at Lexington Street	0	0
Union Avenue at Lincoln Street	2.6	0.36
Union Avenue at Lexington Street	2.3	0.49
Union Avenue at Concord Street	N/A	N/A
Concord St./Hollis St. at Waverly St./West Central Street	1.0	0.07
Central St./Water St. and Elm St./Concord St.	N/A	N/A

* Accident Rate = Number of accidents per million vehicles entering intersection (MEV).

The Institute of Transportation Engineers has established an Intersection incident rate of 1.5 or greater as indicative of a safety concern. Of the intersections under evaluation, the intersection of Cochituate Road and Speen Street experiences the highest number of accidents, (10.7 accidents per year). and the highest accident rate (0.70 accidents per year). This accident rate, and the accident rates for all of the project intersections analyzed are not of a level that would indicate a hazardous condition.

Analysis of the accident pattern of the intersection of Cochituate Road and Speen Street indicates a high number of angle collisions between northbound left turns and southbound thru movements along Speen Street. This is indicative of the high traffic volumes that occur at the intersection and the need for increased capacity to accommodate the large demand for northbound left turn movements,

Research for the intersection of Union Avenue and Concord Street revealed no reported accidents. Discussions with the Framingham Safety Officer confirmed that a high number of low speed “fender-bender” type accidents occur that are not reported. Accident data for the intersection of Central Street/Water Street at Elm Street/Concord Street was not reviewed due to the recent road improvement implemented at that location. Review of the accident patterns at the remaining project intersections did not reveal a definable trend which might indicate a safety deficiency under the existing baseline traffic condition.

1.3 Analysis Of Existing Traffic Conditions

1.3.1 Edgell Road at Edmands Road/Water Street - Nobscot

Edgell Road is a major 2-lane north/south roadway that intersects with Main Street and Route 9 in Framingham Center and extends northerly through Nobscot to Route 20 in the adjacent Town of Sudbury. Daily weekday traffic volumes along Edgell Road are estimated to be 15,000 vehicles north of the Edmands Road/ Water Street intersection and 16,000 vehicles to the south.

Edmands Road is a 2-lane residential collector that intersects with Water Street. and Edgell Road in Nobscot and extends westerly to the Towns of Southborough and Marlborough. The estimated daily weekday traffic volume is 3,500 vehicles.

Water Street is a 2-lane east/west roadway that extends from Edmands Road and Edgell Road in Nobscot to a “T” intersection with Central Street in Saxonville. Estimated daily weekday traffic volumes are 11,000 vehicles.

Traffic analyses for the existing AM and PM peak hour conditions indicate that the intersection is presently operating at or near capacity. The major contributors to delay experienced at this intersection are the southbound left turns from Edgell Road and the westbound through traffic along Water Street during the PM peak hour.

1.3.2 Route 9 Ramps at Edgell Road and Main Street - Framingham Center

As previously discussed, Edgell Road extends from Main Street at Route 9 in Framingham Center north to Route 20 in the Town of Sudbury. Daily weekday traffic volumes along the section of Edgell Road immediately north of Route 9 in Framingham Center are estimated to be 22,000 vehicles.

Main Street is a major 2-lane roadway extending from Edgell Road at Route 9 and connecting directly to Union Avenue and points south in Downtown Framingham. Passing over Route 9, Edgell Road and Main Street create a diamond interchange with the eastbound and westbound on/off ramps from Route 9. The ramp intersections with Edgell Road and Main Street are controlled by 2 interconnected traffic signals separated by approximately 340 feet. Existing lane usage and the approach at the northern signalized ramp Intersection (Westbound Ramps) are as follows:

- Edgell Road 1 left turn lane
 - Northbound 1 thru lane
 - Edgell Road 1 thru lane
 - Southbound 1 thru/right lane
- Route 9 1 left turn lane
 - Westbound 1 left/thru lane
 - Ramp 1 thru/right lane

Existing lane usage on the approaches at the southern signalized ramp intersection (Eastbound Ramps) are as follows:

- Main Street 2 thru lanes
 - Northbound
- Edgell Road 1 left turn lane
 - Southbound 1 thru lane
- Route 9 1 left turn lane
 - Eastbound 1 left/thru/right lane
 - Ramp

Capacity analyses performed for the existing AM and PM peak hour conditions indicate that these intersections are presently operating at or near capacity. The heavy traffic demands from all approaches, combined with the need for proper coordination between the two traffic signals, contribute to significant delays for vehicles utilizing this interchange.

The major delays in-the morning peak generally occur along the eastbound Route 9 ramp approach while the westbound Route 9 ramp experiences major delays during the afternoon peak.

1.3.3 Cochituate Road at Beacon Street - Golden Triangle

Cochituate Road (State Route 30) is a major roadway that extends from Route 9 in Framingham to the Town of Wayland east of Speen Street. It provides an interchange connection to the Massachusetts Turnpike, and forms the northern boundary of the "Golden Triangle" area. Capacity and safety improvements currently underway by the MDPW for the section of Route 30 between Route 126 and Speen Street are nearing completion. The improvements will provide for 4 through lanes with left turn storage and signalization at critical intersections. Weekday traffic volumes in the vicinity of Beacon Street are estimated to be 12,000 vehicles.

Beacon Street is a 2-lane local/collector roadway that intersects with Central Street and residential areas in the north and extends southerly to intersect with Route 9 (westbound direction only). Estimated weekday traffic on this portion of Beacon Street north of Cochituate Road is 9,000 vehicles.

The intersection of Cochituate Road and Beacon Street is presently controlled by a semi-actuated traffic signal interconnected with the traffic control at Cochituate Road and Concord Street. The Beacon Street approaches of the

intersection, both northbound and southbound, are each marked with one general purpose lane; two lane approaches are indicated eastbound and westbound along Cochituate Road.

Capacity analysis performed for the existing AM peak hour indicates a Level of Service D while the PM peak hour shows a Level of Service B. The reduced Level of Service during the AM Peak Hour can be attributed to high left turn volumes southbound from Beacon Street and delays encountered while waiting for the corresponding green phase to proceed through the intersection.

1.3.4. Cochituate Road at Speen Street - Golden Triangle

As previously mentioned, Cochituate Road (State Route 30) extends from Route 9 in Framingham to the Town of Wayland east of Speen Street. Weekday traffic volumes along the section of Cochituate Road west of Speen Street are estimated to be 37,000 vehicles, while volumes east of Speen Street are estimated to be 15,000 vehicles.

Speen Street is a connector route that extends from Old Connecticut Path in the North to points south in the Town of Natick and forms the east boundary of the "Golden Triangle" area. This section of Speen Street between Cochituate Road and Route 9 is a 4 lane divided facility, and narrows to 2 lanes North of Cochituate Road. Daily traffic volumes immediately north of Cochituate Road are estimated to be 19,000 vehicles, while traffic volumes to the south of Cochituate Road are estimated at 29,000 vehicles.

The intersection of these roadways is presently controlled by a 3 phase traffic signal that provides a 10 second advance for northbound Speen Street. Each roadway approach is marked with one exclusive left turn lane and combined thru/right turn lane. The exception is Speen Street southbound which is marked as two general purpose lanes.

Capacity analyses for the existing AM and PM peak hour conditions indicate that the intersection is operating at or near capacity. High traffic volumes and turning movement conflicts from all approaches contribute to this condition.

1.3.5 Concord Street at Lincoln Street - Downtown Framingham

Concord Street (State Route 126) is the major north/south traffic artery passing through Downtown Framingham. It connects Route 135 and the southern section of the downtown center with Saxonville, and also provides an interchange connection as it crosses Route 9. Daily weekday traffic volumes immediately north of Lincoln Street are estimated to be 30,000 vehicles.

Lincoln Street is a 2-lane bi-directional street that extends from Union Avenue to Concord Street in Downtown Framingham, with an estimated weekday traffic volumes of 14,000 vehicles.

The "T" Intersection of Concord Street and Lincoln Street is presently controlled by a 2 phase pre-timed traffic signal. The existing approach lanes are provided as follows:

- Concord St..... 1 left/thru lane
Northbound
- Concord St..... 1 thru lane
Southbound 1 right turn lane
- Lincoln St. 1 left turn lane
Eastbound..... 1 right turn lane

Capacity analyses performed for the existing AM peak hour indicate a Level of Service D while the PM peak hour shows a Level of Service F. Significant delays are experienced during the afternoon due to high traffic volume eastbound along Lincoln Street that are delayed by the present signal timing. Eastbound right turns are also, delayed by extensive vehicle queues along Concord Street for southbound traffic proceeding through the Downtown Area.

1.3.6 Lincoln Street at Lexington Street - Downtown Framingham

Lexington Street is a one-way northbound local street that extends from Franklin Street to Lincoln Street, carrying an estimated weekday traffic of 2,500 vehicles. The intersection of Lincoln Street and Lexington Street is unsignalized. Although Lincoln Street operates as the thru street, no stop control is posted or marked along the Lexington Street approach. Capacity analyses performed for the critical movements from the Lexington Street

approach indicates an acceptable Level of Service B during the AM peak hour and Level of Service D during the PM peak hour.

1.3.7 Union Avenue at Lincoln Street - Downtown Framingham

Union Avenue is a major 2-lane north/south roadway that extends from Concord Street in Downtown Framingham north to Main Street and connection to Route 9 and Framingham Center. The estimated weekday traffic volumes along Union Avenue, North of Lincoln Street, are estimated to be 18,000 vehicles.

As previously mentioned, Lincoln Street is a 2-lane bi-directional street that extends from Union Avenue to Concord Street in Downtown Framingham. The estimated weekday traffic volumes on Lincoln Street in the vicinity of Union Avenue are 10,000 vehicles

The intersection of Lincoln Street and Union Avenue is presently unsignalized with stop control posted for the Lincoln Street approach.

Capacity analyses performed for the critical movements from the Lexington Street approach indicates an acceptable Level of Service D during the AM and PM peak hours.

1.3.8 Union Avenue at Lexington Street - Downtown Framingham

As previously mentioned, Union Avenue extends from Concord Street in Downtown Framingham north to Main Street. The weekday traffic volumes along Union Avenue in the vicinity of Lexington Street are estimated to be 12,000 vehicles. Lexington Street is a one-way eastbound local street that extends from Franklin Street to Lincoln Street. Estimated weekday traffic is 2,500 vehicles. The intersection of Union Avenue and Lexington Street is presently controlled by a 2 phase pre-timed traffic signal. Capacity analyses performed for the existing AM and PM peak hour conditions indicate that the intersection is operating at an acceptable Level of Service B.

1.3.9 Union Avenue at Concord Street

As previously discussed Concord Street (State Route 126) is the major north/south artery through Downtown Framingham. Daily weekday traffic volumes along Concord Street north of Union Avenue are estimated to be 18,000 vehicles and 28,000 vehicles to the south.

Union Avenue is a major 2-lane north/south roadway that extends from Concord Street in Downtown Framingham north to Main Street and connection to Route 9 and Framingham Center. The estimated weekday traffic volumes along Union Avenue north of Concord Street are estimated to be 13,000 vehicles.

The intersection of these roadways forms a "Y" intersection in Downtown Framingham and is presently unsignalized with no posted traffic control. Necessary traffic control is maintained during the PM peak period by a traffic officer. Parking is permitted on both sides of all streets. Pedestrian activity is high with a traffic officer present during most of the day to assist pedestrians crossing Concord Street to the south' of the intersection.

Capacity analyses performed for this intersection indicate a Level of Service F for both the AM and PM peak hours. This condition can be attributed to high traffic volumes and turning conflicts occurring along each major approach to the intersection assisted by the direction of the on duty traffic officer.

1.3.10 Concord St./Hollis Street at Waverly St./West Central St. - Downtown Framingham

Concord Street (State Route 126) is the major north/south artery through Downtown Framingham. At its intersection with Waverly Street/ West Central Street, it becomes Hollis Street and extends south to the adjacent Town of Ashland. Daily weekday traffic volumes along Concord Street immediately to the north are estimated to be 20,000 vehicles while castrated daily volumes along Hollis Street at the Town Line are 18,000 vehicles. Waverly Street/West Central Street (State Route 135) as a major East/west roadway that connects Downtown Framingham to the Town of Ashland in the west and the Town of Natick in the east. Estimated dally weekday traffic volumes to the west along Waverly Street are 20,000 vehicles and 26,000 vehicles to the east along West Central Street.

The intersection of these roadways is presently controlled by a prettied traffic signal coordinated with the adjacent signals along Concord Street and Hollis Street and interconnect with a major at-grade railroad crossing immediately to the north. Parking is presently allowed on both sides of Hollis Street and Waverly Street.

Each roadway approach to the intersection generally functions as one general purpose lane with the exception of the Waverly Street southbound approach which has an additional thru/right turn lane. Capacity analyses performed for the intersection indicate a Level of Service F exists during the Noon and PM peak hours resulting from traffic volumes and turning conflicts occurring along each approach to the intersection. Level of Service B is indicated during the less active AM Peak Hour.

1.3.11 Central Street/Water Street and Elm Street/Concord Street - Saxonville

Central Street is a 2-lane residential collector route that extends from Edgell Road near Framingham Center to its intersection with Elm Street/Concord Street in Saxonville. Daily weekday traffic volumes along Central Street are estimated to be 5,500 vehicles west of Water Street and 15,000 to the east.

Water Street is a 2-lane east/west roadway that extends from Edgell Road in Nobscot to Central Street in Saxonville. Estimated daily weekday traffic volumes along Water Street are 11,000 vehicles. Elm Street is a 2-lane north/south roadway that extends north from Saxonville to Route 20 in the adjacent Town of Sudbury. Daily weekday traffic volumes along Elm Street are estimated to be 11,500 vehicles. Concord Street is a north/south roadway that extends South from Central Street in Saxonville providing a connecting route to the “Golden Triangle”, Route 9, and Downtown Framingham. Daily weekday traffic volumes along Concord Street south of Saxonville are estimated to be 16,500 vehicles.

The intersection of Central Street and Water Street is presently controlled by an actuated traffic signal. Existing approach lanes through the intersection are as follows:

- Central St. 1 left/thru lane Eastbound 1 thru lane
- Central St. 1 thru lane Westbound 1 right turn lane
- Water St. 1 left turn lane Southbound 1 left/right turn lane

Approximately 200 feet to the east of Water Street, Central Street intersects with Elm Street and Concord Street, forming a “T” Intersection. The recently installed traffic signals at the intersection are presently a flash with stop control indication for Central Street. Danforth Street intersects Concord Street approximately 100 feet south of Central Street, creating another “T” intersection with stop control on Danforth Street.

Capacity analyses performed for the critical movements from the Central Street and Danforth Street approaches indicate significant delays for traffic wishing to turn onto Concord Street during both the AM and PM peak hours.

1.4 Summary Of Existing Baseline Condition

The existing roadway network evaluated contains a number of problem Intersections which contribute to the inefficiency of traffic flow and the potential reduction of traffic safety for the roadway user. Table 2 summarizes the Level of Service at the project intersections under existing conditions, and indicates the following intersection presently operate at or near capacity during the peak hour periods:

- Nobscot..... Edgell Road at Edmand’s Road/Water Street
- Framingham Center Route 9 Ramps at Edgell Road and Main Street
- Golden Triangle..... Cochituate Road at Speen Street
- Downtown Framingham..... Concord Street at Lincoln Street (PM Period Only)
- Union Avenue at Concord Street
- Concord Street/Holes Street at Waverly Street/West Central Street (PM Period Only)
- Saxonville Central Street at Elm St./Concord St.

The Level of Service was determined by capacity analyses utilizing the methodology of the 1985 Highway Capacity Manual. The capacity analyses calculations are contained in the Appendix D of this report.

The intersection of Cochituate Road and Speen Street experiences the highest number of accidents (10.7 accidents per year) and the highest accident rate (0.70 accidents per MEV). This accident rate, and the accident rates for all of the project intersections analyzed are not of a level that would indicate a hazardous condition under the existing baseline traffic condition.

TABLE 19: SUMMARY OF TRAFFIC CAPACITY ANALYSIS IN FRAMINGHAM

Intersection	Critical Approach	Existing Level of Service	
		AM Peak	PM Peak
Edgell Rd. at Edmands Rd./Water St.	Overall*	F	E
Route 9 Ramps at Edgell Rd. & Main St.	Overall*	E	E
Cochituate Rd. at Beacon Street	Overall*	D	B
Cochituate Rd. at Speen Street	Overall*	F	F
Concord Street at Lincoln Street	Overall*	D	F
Lincoln Street at Lexington Street	Lexington St.	B	D
Union Avenue at Lincoln Street	Lincoln St.	D	D
Union Avenue at Lexington Street	Overall*	B	B
Union Avenue at Concord Street	Union Ave.	F	F
Concord St./Hollis St. at Waverly St./ West Central Street	Overall*	B	F
Central St./Water St. and Elm St./Concord St.	Central St.	E	F
	Danforth St.	E	F

Note: * Signalized Analysis

1.5 Proposed Improvements

Nobscot

1.5.1 Location Evaluated:

Edgell Road at Edmands Road/Water Street General Operating Conditions:

Traffic analyses for the existing AM and PM peak hour conditions indicate that the intersection is presently operating at or near capacity. The major contributors to delays experienced at this intersection are the southbound left turns from Edgell Road and the westbound through traffic along Water Street during PM peak hour.

Potential Modifications necessary to improve Traffic Flow:

- Revise existing signal operation, to include changes in phasing and timing.
- Widen roadways to include additional turning lanes.

Framingham Center

1.5.2 Location Evaluated:

Main Street, Edgell Road, and Ramps to Route 9

General Operating Conditions:

Capacity analyses for the existing AM and PM peak hour conditions indicate that these intersections are presently operating at or near capacity. The heavy traffic demands from all approaches, combined with the need for proper coordination between the two traffic signals, contribute to significant delays for vehicles utilizing this interchange. The major delays in the morning peak generally occur along the eastbound Route 9 ramp approach while the westbound Route 9 ramp experiences major delays during the afternoon peak.

Potential Modifications necessary to improve Traffic Flow:

- Updated traffic signals to include changes in phasing and timing.
- Redesign/reconfigure re interchange to minimize or eliminate turning conflicts.

GoldenTriangle

1.5.3 Location Evaluated:

Cochituate Road (Route 30) at Beacon Street. General Operating Conditions:

Capacity analyses performed for the existing AM and PM peak hour indicates a Level of Service D while the PM peak hour shows a Level of Service 8. The reduced Level of Service during the AM peak hour can be attributed to

high left turn volumes southbound from Beacon Street and delays encountered while waiting for the corresponding green phase to proceed through the intersection.

Potential Modifications necessary to improve Traffic Flow:

- Installation of updated traffic signal equipment.
- Revised signal timing and phasing.

2.5.4 Location Evaluated:

Cochituate Road (Route 30) and Speen Street.

General Operating Conditions:

Capacity analyses for the existing AM and PM peak hour conditions indicates that the intersection is operating at or near capacity. High traffic volumes and turning movement conflicts from all approaches contribute to this condition.

Potential Modifications necessary to improve Traffic Flow:

- Installation of updated traffic signal equipment.
- Revised signal timing and phasing.
- Roadway widening to additional turning lanes.

Downtown Framingham

1.5.5 Location Evaluated:

Lincoln Street and Concord Street (Route 126).

General Operating Conditions:

Capacity analyses performed for the existing AM and PM peak hour indicates a Level of Service D while the PM peak hour shows a Level of Service F. Significant delays are experienced during the afternoon due to high traffic volumes eastbound along Lincoln Street that are delayed by the present signal timing. Eastbound right turns are also delayed by extensive vehicle queues along Concord Street for southbound traffic proceeding through the Downtown Area.

Potential Modifications necessary to improve Traffic Flow:

- Installation of updated traffic signal equipment.
- Revised signal timing and phasing.
- Revision of existing downtown traffic circulation patterns.

1.5.6 Location Evaluated:

Lincoln Street and Lexington Street.

General Operating Conditions:

Capacity analyses performed for the critical movements from the Lexington Street approach indicates an acceptable Level of Service B during the AM peak hour and Level of Service D while the PM peak hour.

Potential Modifications necessary to improve Traffic Flow:

- Installation of pavement markings along Lexington Street to include separate left and right turn lanes.
- Revision of existing circulation pattern.

1.5.7: Location Evaluated

Lincoln Street and Union Avenue.

General Operating Conditions:

Capacity analyses performed for the critical movements from the Lexington Street approach indicates an acceptable Level of Service D during the AM and PM peak hours.

Potential Modifications necessary to improve Traffic Flow:

- Installation of pavement markings Union Avenue to include exclusive left turn lane southbound.

- Revision of existing downtown traffic circulation pattern.

1.5.8 Location Evaluated

Union Avenue and Lexington Street.

General Operating Conditions:

Capacity analyses performed for the existing AM and PM peak hour conditions indicate that the intersection is operating at an acceptable Level of Service B.

Potential Modification necessary to improve Traffic Flow:

- Installation of updated traffic signal equipment to include coordination with adjacent signals in the downtown area.
- Revised signal timing.

1.5.9 Location Evaluated:

Union Avenue and Concord Street (Route 126).

General Operating Conditions:

Capacity analyses performed for this intersection indicate a Level of Service F for both AM and PM peak hours. This condition can be attributed to high traffic volumes and turning conflicts occurring along each major approach to the intersection assisted by the direction of the on duty traffic officer.

Potential Modifications necessary to improve Traffic Flow:

- Redesign of the intersection to include the installation of channelizing islands and traffic signals.
- Revision of the existing downtown traffic circulation pattern to include establishing a series of one way streets with the installation of traffic signals at key intersections and pedestrian crossings.

1.5.10 Location Evaluated:

Concord Street (Route 135), Hollis Street, Waverly Street, and West Central Street.

General Operating Conditions:

Capacity analyses performed for this intersection indicate a Level of Service F exists during the Noon and PM peak hours resulting from traffic volumes and turning conflicts occurring along each approach to the intersection. Level of Service B is indicated during the less active AM peak hour.

Potential Modifications necessary to improve Traffic Flow

- Installation of actuated traffic signal equipment.
- Revision to existing signal timing.

Saxonville

1.5.11 Location Evaluated:

Central Street and Water Street; Central Street, Elm Street and Concord Street.

General operating Conditions

Capacity analyses performed for the critical movements from the Central Street and Elm Street approaches indicate significant delays for traffic wishing to turn onto Concord Street during both AM and PM peak hours.

Potential Modifications necessary to improve Traffic Flow:

- Ongoing improvements proposed at the intersection of Central Street and Elm Street will improve traffic flow by incorporating signal phasing and timing changes for the previous signal operation .
- Revised signal timings for the intersection of Central Street and Water Street.

2.0 ROUTE 9 CORRIDOR STUDY

2.1 Existing Conditions

Route 9, the old Worcester Road, cuts east-west through Framingham, linking Boston to Worcester and points west. After its reconstruction to highway standards and the suburbanization of employment and housing experienced in the Metropolitan area for the last three decades, Route 9 has created an impact zone, which can be called a development corridor. This, in turn, has been aided by zoning regulations that encouraged the construction of commercial development in the corridor. In Framingham, development has consisted of retail and shopping centers, such as Shopper's World, and apartment/condominium mid-rise buildings; it is only in the last years that office buildings have begun to appear in the corridor - an expression of the shift in the regional economic base. The land uses created by Route 9 must be considered from the beginning in any traffic study of the highway.

Route 9 has become one of the most congested highways in the state. Its intersection with Routes 128 and 495 extends its influence throughout the region. In the Framingham area, other important roads are related to Route 9. Route 30, which also runs east-west, intersects Route 9, sharing a common pavement for a short distance. Route 126, running north-south, also intersects Route 9 to the east of Route 30 crossing. Route 135 parallels Route 9 to the South.

Interstate 90, the Massachusetts Turnpike, runs roughly parallel to the north of Route 9. The Mass Pike has two interchanges in Framingham: Interchange 12 (with Route 9) is in the western part of the Town, Interchange 13 (with Route 30) is in the northern boundary of the Golden Triangle.

Route 9 suffers from a number of problems. One problem is that traffic moving eastbound with the destination of Route 30 is forced to use Route 126, Speen Street and ad hoc private roads. Also, Route 9 and Route 30 have a stretch of common roadway east of Prospect Street, forcing different types of traffic to mix in an unsafe and congested fashion. Another problem is that Interchange #13 of the Mass Pike connects with Route 30, rather than with Route 9 - which would have been far more effective.

Yet another problem is the intersections with Edgell Road, Temple Street, and Prospect Street: congested conditions at Edgell Road appear to divert traffic to the Temple Street intersection (westbound from Route 9 onto Temple Street southbound) and to the Prospect Street intersection (eastbound from Route 9 onto Prospect Street northbound), which aggravates the congestion at these two intersections.

Of particular interest is the fact that there is a very large traffic volume with origins and destinations in areas south of Route 9, traffic that does not have suitable transportation facilities to suit the demand. Part of this traffic demand has regional characteristics, being related to the Massachusetts Turnpike; part is local traffic. Currently, Route 126 is the major road with the capacity of allowing westbound Route 9 traffic to take a left turn onto Route 126 southbound. This means that a large share of automobiles coming from Boston, Route 128, and other areas to the east would be forced to use Route 126 for points south, seriously aggravating the congestion of Downtown.

This problem has led to recurrent proposals to find a "north-south" connector. In 1974, for example, a MDPW report proposed the construction of a new connector road between Hartford Street and Route 30, to increase the north-south capacity in the region. In 1980, as another example, a CTPS report studied the possibility of a north-south bypass and concluded that it would involve prohibitively high construction costs and negative environmental impact. This confirmed a widespread assessment that a north-south bypass is not feasible.

Between 1985 and 1987, CTPS conducted 48-hour directional traffic counts along the Route 9 corridor. In general, they showed relatively defined peaks with a split between eastbound and westbound traffic in the morning peak, while the evening peak tends to be less defined. There are very high mid-day volumes, which cause the morning and evening peaks to appear relatively less clear. This indicates that Route 9 serves not only commuter traffic, but also considerable levels of local and regional traffic. Also, it appears that Route 9 serves not only east-west traffic, but also north-south traffic moving towards north-south roads. Finally, the higher volumes in the evening peak indicates that there are substantial numbers of late afternoon/early evening trips related to the retail establishments in the Golden Triangle.

The average annual weekday traffic volumes at the Golden Triangle were 23,850 trips westbound and 23,351 eastbound, while just east of Interchange #12 were 26,463 westbound and 27,915 eastbound. In general, traffic increases towards the end of the week, with the highest volume occurring on Friday; weekends have less traffic.

The weekday peak hour traffic volumes were counted at seven locations, and their results averaged. The averages of peak time travel were approximately the following: morning peak, eastbound: 1,850 vehicles (9 AM), westbound: 1,350 vehicles (9 AM); evening peaks, westbound: 1,900 vehicles (5&6 PM), eastbound: 1,850 vehicles (5-6 PM). At mid-day the averages were approximately 1,450 vehicles eastbound and 1,450 vehicles westbound (1 PM). The total eastbound and westbound peak traffic average volumes were approximately 3,750 vehicles in the evening (6 PM) and 3,200 vehicles in the morning (9 AM).

Although the improvement of Route 9 lies outside of the responsibility of the Town, the Consultants have studied several key intersections in the Corridor in order to guide the Town's efforts at improving the local street system, as well as at negotiating the best improvement solutions for Route 9 with the State. These intersections are:

- Route 9 ramps at Edgell Road and Main Street
- Route 30 at Beacon Street
- Route 30 at Speen Street

Their recommendations, which focus on short term improvements, are detailed in the Transportation Element of the Comprehensive Plan. However, the Consultants also studied long-term effects, policies, programs, and improvements, in order to ameliorate the impact of Route 9 on the Town, as well as the growing congestion on that highway.

2.2 Traffic Forecasts

The forecasts of future traffic volumes in the Route 9 Corridor are based on population, household, retail, and non-retail forecasts, prepared by MAPC in 1987. Later on, this agency also updated regional employment for 1990, 1995, and 2010, which were completed in 1988. This data was used by CTPS to estimate zone level forecasts. Base year (1987) traffic zone levels use configurations and projected future (1995) land use changes (from field data) were used to distribute population and employment into traffic zones for 1995 forecasts. Beyond that data, 1990 and 2010 forecasts were extrapolated based on the relative growth expected in each area between 1987 and 1995, adjusted by known projects such as the "9/90" development.

The forecast is for a net addition of 3,800 new households in Framingham between 1987 and 2010, representing 14 percent increase in 23 years. It should be noticed that this forecast highlights a fairly stable population that, due to the reduction of number of persons per household apparent since the 1960's, still shows an increase in households - and thus in the demand for housing units and the generation of automobile trips, among other impacts.

The employment growth rate is forecast to be higher than that for households. Between 1987 and 2010, retail employment is forecast to add 3,780 new jobs for a relative increase of 33 percent, while non retail employment is forecast to add 9,364 new jobs for a relative increase of 23 percent.

In order to complete the statistical base for a travel forecast, a built-out analysis was completed. (It should be noticed that this Report includes built-out analysis of Route 9 Corridor and the Golden Triangle specifically, completed by MAPC, and the Consultants; the two arrived at comparable results.) The indications are that there exists the possibility of substantial additions of new building area to a Corridor that appears fairly congested. Potential development was translated into potential new jobs by assuming a new employee for every 220 square feet of development, which were in turn allocated between retail and non-retail based on DES past percentages. Employment estimates, in turn, were distributed among traffic zones, allocated based on the frontage on Route 9 of each zone.

Based on this information, trips were generated, distinguishing between retail and non-retail employment, since retail will attract considerably more trips than non-retail zones. Further, trip distribution (i.e. commuting, shopping-recreation with one stop, and with several stops) was estimated for each zone, based on the average daily trips per household and trip distribution percentage by household and income, for an urban area of 100,000 to 250,000 population (Transportation Research Board Report # 187). A gravity model was used to allocate trip distribution by zones. The travel demand forecasts, in turn, were developed for morning and evening peak period, mid-day, and evening, based on time of day statistics (US DOT Report # FH-11-7519). Finally, trips were assigned to Route 9 segments, based on accessibility and congestion - if traffic volumes to road capacity computations result in congestion, then volumes exceeding capacity are re-assigned. The whole model was then calibrated according to observed field conditions in the base year.

2.2.1 24 Hour Traffic Volumes: Westbound/Eastbound-Southbound/Northbound

2.2.1.1 BASE YEAR 1987

Location	Westbound/Eastbound	Southbound/Northbound
Route 9, between Natick line and Route 126	22,019	22,397
Route 9, between Rte. 126 and Main St.	31,389	30,134
Route 9, between Main St. and Edgell Rd.	30,590	19,223
Route 9, between Edgell Rd. & Temple St.	19,249	20,987
Route 9, between Temple St. and Exit 12	19,485	21,730
Route 126 (south)	17,669	15,285
Route 30 (east)	14,944	14,135
Edgell Road (north)	9,722	9,912
Main Street (south)	16,585	7,324
Temple St. (north)	3,340	2,346
Temple St. (south)	6,639	5,137

2.2.1.2 Base Year 1995

Location	Westbound/Eastbound	Southbound/Northbound
Route 9, between Natick line and Route 126	28,425 (+6,406)	41,402 (+19,005)
Route 9, between Rte. 126 and Main St.	36,993(+5,604)	41,429 (+11,295)
Route 9, between Main St. and Edgell Rd.	37,889(+7,299)	27,454 (+8,231)
Route 9, between Edgell Rd. & Temple St.	23,355 (+4,106)	28,181(+7,194)
Route 9, between Temple St. and Exit 12	23,213 (+3,808)	28,727 (+6,997)
Route 126 (south)	21,490 (+3,821)	18,971 (+3,686)
Route 30 (east)	19,653 (+4,709)	11,316 (-2,819)
Edgell Road (north)	12,027 (+2,305)	101888 (+976)
Main Street (south)	20,778 (+4,193)	7,904 (+580)
Temple St. (north)	4,384 (+1,044)	3,292 (+946)
Temple St. (south)	7,436(+797)	5,735 (+598)

2.2.1.3 Year 2010

Location	Westbound/Eastbound	Southbound/Northbound
Route 9, between Natick line and Route 126	32,137 (+10,118)	44,936(+22,539)
Route 9, between Rte. 126 and Main St.	40,293(+8,904)	45,339(+15,215)
Route 9, between Main St. and Edgell Rd.	42,183(+11,593)	29,823(+10,600)
Route 9, between Edgell Rd. & Temple St.	26,634(+7,3S5)	31,478(+10,491)
Route 9, between Temple St. and Exit 12	25,842 (+6,357)	31,181(+9,451)
Route 126 (south)	23,546(+5,877)	19,927(+4,642)
Route 30 (east)	19,976(+5,032)	12,721 (-1,414)
Edgell Road (north)	12,534(+2,S12)	11,279 (+1,367)
Main Street (south)	22,377 (+5,792)	8,348 (+1,024)
Temple St. (north)	5,448 (+2,108)	4,207 (+1,861)
Temple St. (south)	6,764(+125)	5,519 (+382)

2.2.1.4 Corridor Build Out And Golden Triangle, 2010

Location	Westbound/Eastbound	Southbound/Northbound
Route 9, between Natick line and Route 126	57,678 (+35,659)	63,688 (41,291)
Route 9, between Rte. 126 and Main St.	61,838 (+30,449)	59,518 (+29,384)
Route 9, between Main St. and Edgell Rd.	63,907 (+33,317)	39,963 (+20,740)
Route 9, between Edgell Rd. & Temple St.	39,934 (+20,655)	43,183 (+22,196)
Route 9, between Temple St. and Exit 12	39,771 (+20,286)	42,789 (+21,059)
Route 126 (south)	29,810 (+12,141)	24,357 (+9,072)

Route 30 (east)	32,744 (+17,800)	21,937 (+7,802)
Edgell Road (north)	14,061 (+4,339)	13,539 (+3,627)
Main Street (south)	29,100 (+12,515)	8,985 (+1,661)
Temple St. (north)	5,505 (+2,165)	4,355 (+2,009)
Temple St. (south)	9,759 (+3,120)	8,841 (+3,704)

2.2.5 Conclusions

Between 1987 and 1990, the Route 9 Corridor is expected to experience a 7 percent increase in the number of trips, although some intersections such as Route 30 and Route 126, and Route 30 and Route 9 will experience increases on the order of 10 to 11 per- cent. Expected improvements at these locations account for some of the forecasted travel increases, because of improved capacity.

Between 1990 and 1995, the Route 9 Corridor is expected to experience an additional increase in the number of trips of almost 6 percent; that is a 13 percent growth relative to 1987. In general, this represents a substantial increase in a corridor traveled by heavy traffic volumes already, but in some areas the increase could be even more burdensome. The greatest increase, as expected, would occur in the Golden Triangle, where the expected construction of a diamond interchange at Shopper’s World is likely to impact future traffic distribution.

Between 1995 and 2010, the Route 9 Corridor is expected to experience an additional increase of 9 percent in the number of trips; that is a 24 percent increase relative to 1987. However, some specific sectors may have larger relative increases.

Under full zoning build-out conditions, traffic in the Corridor and the Golden Triangle, will result in even higher increases. The build- out of the Golden Triangle, though generating far higher traffic volumes than the Corridor build-out, has the advantage of being concentrated rather than dispersed along a line; this allows the focusing of ameliorative measures to control its future impacts, which are an integral part of this Comprehensive Plan.

Following is a summary of the forecasted travel volumes along Route 9, with their relative increase compared with base year 1987.

**TABLE 20: ROUTE 9 CORRIDOR: FUTURE TRAFFIC VOLUMES, 1995, 2010
IN NUMBER OF VEHICULAR TRIPS AND PERCENTAGE INCREASE OVER 1987**

Area	Base Year 1987		Forecasts				Build-out 2010	
	#	% Inc.	1995		2010		#	% Inc.
			#	% Inc.	#	% Inc.		
Natick-Rte. 126	44,416	0%	69r827	57%	77r073	74%	121r366	173%
Rte. 126-Main St.	61,523	0%	78r422	27%	85r632	39%	121r356	97%
Main St-Edgell Rd.	49,813	0%	65r343	31%	72r006	45%	103,870	109%
Edgell-Temple St.	40,236	0%	51r536	28%	58r112	44%	83r117	107%
Temple St-Exit 12	41,215	0%	51r940	26%	57r023	38%	82r560	100%

Three major conclusions can be extracted from this table:

- The Route 9 Corridor will experience major increases in traffic volumes.
- The most affected sector is from Natick to Route 126 (Golden Triangle) which would be burdened with increases from 75 percent to 100 percent higher than the other sectors.
- The build-out of the Corridor and the Golden Triangle would result in traffic volumes that are more than double those forecasted based on socio-economic trends.

The impact on the Route 9 Corridor of what we can consider “normal” growth based on socio-economic projection will enormously aggravate an already congested situation. We can expect that, in most of the Corridor, traffic volumes would increase by 38 to 45 percent above present volumes by 2010 - that is, a flow that is now between 40,000 to 60,000 vehicles a day would jump to 60,000 to 85,000 vehicles by 2010.

The impact in the sector of the Golden Triangle would be even higher, with traffic volumes increasing by 74 percent by 2010 over present conditions - that is, a flow that is now around 44,000 vehicles per day would increase to 77,000 vehicles by 2010.

However distressing this forecast is, the potential for development in the Corridor could result in even higher traffic volumes - far above the capacity of any highway improvement to handle. The build-out analysis of the Corridor and the Golden Triangle results in an increase in traffic volumes by 2010 of around 100 percent in most of the sectors-- where there are now 40,000 to 60,000 vehicles per day, no less than 80,000 to 100,000 may travel daily if the Corridor reaches build-out conditions.

Clearly, the impact in the Golden Triangle sector would be even higher, with traffic volumes increasing by 173 percent by 2010 over 1987--where there are now 44,000 vehicles per day, no less than 120,000 may travel daily if the Corridor and the Golden Triangle reach build-out conditions.

Obviously, future improvements may somewhat increase Route 9 capacity, but the fact remains that the Corridor may face very substantial traffic increase. The most critical sectors, in terms of total volume, are from Natick to Route 126, and from there to Main Street: this stretch may face volumes of 120,000 vehicles per day, in contrast with the current 45,000 to 60,000 today.

Clearly, policies to ameliorate future traffic impacts and, indeed, to manage growth, must be developed for the Golden Triangle and the rest of the Corridor. There has been a number of previous reports which have addressed specific isolated improvements or growth management tools: partial depression of Route 9 (MDPW, Route 9 Improvements Basic Design Report, November, 1967), construction of an internal road system and public transportation alternatives (MDPW, Summary Report, February 1974), construction of two-way service roads parallel to Route 9 to separate local and through traffic (MDPW, Summary Report, 1973), development of bus services (CTPS, CRIP, 1978), construction of Parking/commuter bus terminal in the Golden Triangle (CTPS, Technical Report #21, September 1980), and development of growth management programs to control future traffic problems (MAPC, February 1986).

The Master Plan for the Town places particular attention on the development of growth management policies to control traffic growth through land use and other approaches.

In addition to the traffic impact on Route 9 proper, side streets would experience substantial increases with clear impact on most of the Town. Following is a summary of the forecasted travel volumes on the side streets feeding Route 9, with their relative increase compared with base year 1987.

TABLE 21: ROUTE 9 SIDE STREETS: FUTURE TRAFFIC VOLUMES, 1995, 2010, IN NUMBER OF VEHICULAR TRIPS AND PERCENTAGE INCREASE OVER 1987

Area	Base Year 1987		Forecasts				Build-out 2010	
	#	% Inc.	1995		2010		#	% Inc.
			#	% Inc.	#	% Inc.		
Rte. 126 (S)	32,954	0%	40,461	23%	43,473	32%	54,167	64%
Rte. 130 (E)	29,079	0%	30,969	6%	32,697	12%	54,681	88%
Edgell Rd.(N)	19,634	0%	22,915	17%	23,813	21%	27,600	41%
Main St.(S)	23,909	0%	28,682	20%	30,725	29%	38,085	59%
Temple St. (N)	5,686	0%	7,676	35%	9,655	70%	9,860	73%
Temple St. (S)	11,776	0%	13,171	12%	12,283	4%	18,600	58%

The future impact of traffic on Town streets is, without considering build-out, fairly uneven. For example, while Temple Street (south sector) is forecasted to experience only marginal increases, Temple Street (north sector) is forecasted to suffer substantial impacts. Of all the local streets considered, Route 126 southbound (Concord Street) remains with the highest absolute traffic levels, which indicates that traffic congestion in Downtown Framingham would continue to deteriorate if no measures are taken.

If, however, build-out is considered, the situation worsens in most streets--except in Temple Street northbound which would remain with approximately the same level of traffic increase discussed above. The highest relative increase would be experienced by Route 130, almost doubling 1987 levels. Route 126 would almost match Route 130 absolute levels.

Although a number of road improvement projects should be considered, it is clear that growth management policies must be an integral part of the Master Plan. Control of future traffic through changes in land use, public transportation and similar actions must be carefully considered by the Town.

2.3 Future Conditions

Travel patterns are changing in the MetroWest region. The number of trips between the I-495 exit at the Mass Pike to/from exits within the Golden Triangle catchment area has increased dramatically. High traffic volumes are expected in 2010 from Framingham and Natick to/from the Golden Triangle; Routes 16 and 27 are expected to carry very high volumes to/from Sherborn, Holliston, Millis, and other points south. The communities using I-495 and Route 128 are expected to generate the heaviest total traffic with the Golden Triangle. In other words, travel demand would be larger between the high-tech employment centers along Rte. 128 and the Golden Triangle.

In the analysis of future conditions, both travel demands and road capacities are related. If demand in a road is higher than its capacity, congestion occurs and traffic diverted to other roads which function as alternates to congested ones because they have excess capacity.

For through traffic, the analysis suggests that the Mass Pike is used, rather than Route 9; this is caused by the prevalent congestion of Route 9 especially in the area of the Golden Triangle. Trips with origin and/or destination to the south of the Golden Triangle, tend to use Route 9 to avoid the congestion of Route 30 at Interchange 13 in the northern part of the Golden Triangle. However, due to congestion in Route 9, trips are diverted to Route 135, which functions as a minor alternate to Route 9.

Focusing now on specific sections of Route 9, there are some cases in which traffic patterns are diverted to avoid particularly congested intersections. For example, the Prospect Street intersection owes part of its congestion to congestion at Edgell Road: eastbound traffic trying to turn left and proceed northbound at Edgell Road is diverted to try a left turn at Prospect Street. In turn, Edgell Road is congested by traffic coming from the north and from the south in Main Street. In addition, northbound traffic traveling along Union Avenue and Franklin Street may choose to use Winter Street to gain access to Route 9. This congestion may also cause westbound Route 9 traffic aiming at a left turn on Salem End Road to try Temple Street.

Detailed congestion analysis have been prepared by CTPS, based on observed hourly distribution of weekday volumes, on forecasted 2010 and Corridor-Golden Triangle build-out volumes discussed before and on estimated capacity. The assumption was a capacity of 1,800 vehicles per hour per lane as maximum saturation flow rate, adjusted to account for intersections, curb cuts, and driveways.

The congestion analysis, studied hour by hour, showed times of the day when projected volumes exceeded capacity, forcing traffic to spread out flows into adjacent hours--a reflection of what is already happening in Route 9. This phenomenon is especially noticeable near Shopper's World, where actual traffic counts indicate that there is a 3-hour evening peak between 4 and 7 p.m. The spill-over of traffic from the congested hours to other hours of the day is caused by both delayed drivers caught in slow moving traffic, and drivers who changed schedules to avoid the congested time. It must also be stressed that the potential to find alternate routes to Route 9 is somewhat limited, because many origins and destinations are located in the Corridor.

As an example, the congestion analysis of the Route 9 westbound sector east of Prospect Street is included.

**TABLE 22: ROUTE 9 WESTBOUND, EAST OF PROSPECT STREET
HOURLY VOLUME AND CAPACITY ANALYSIS**

Hour Ending	1987	2010	Golden Triangle Build Out
1:00 AM	323	485	635
2:00	102	153	200
3:00	53	80	105
4:00	47	70	92
5:00	50	75	97
6:00	131	198	259
7:00	575	865	1,132
8:00	1,376	2,070	2,710
9:00	1,728	2,606	3,412

10:00	1,366	2,055	2,690
11:00	1,483	2,232	3,312
12:00 PM	1,626	2,446	3,500
1:00	1,989	2,992	3,500
2:00	1,925	2,896	3,500
3:00	1,954	2,940	3,500
4:00	2,166	3,360	3,500
5:00	2,321	3,500	3,500
6:00	2,605	3,500	3,500
7:00	2,189	3,500	3,500
8:00	1,821	2,842	3,500
9:00	1,449	2,179	3,500
10:00	1,441	2,168	2,838
11:00	810	1,218	1,595
12:00 AM	604	909	1,190
Total	30,134	45,339	55,265

Source: CTPS

The 2010 forecast indicates a 3-hour congestion period between 4 and 7 PM. The build-out of the Golden Triangle would increase the congestion period considerably; it would last no less than 10 hours, from 11 AM to 9 PM. It is more than obvious that a build-out of the Golden Triangle without any growth management policy, would result in a serious deterioration of an already burdened road--even accounting, as this analysis does, for future improvements. In the words of CTPS, "no single or composite transportation solution exists which has the necessary flexibility to adequately meet the demands of unrestricted land- use development... through the exercise of considering the improvements necessary to meet existing and future travel demands, it was found that no simple solution exists." (CTPS, The Route 9 Corridor Overview, Technical Report 54b (1), p.141).

Thus, the Master Plan places priority in developing growth management techniques to control and ameliorate traffic impacts, as well as to make future development coherent with desirable community pattern and infrastructure capacity.

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3.0 PUBLIC TRANSPORTATION

Framingham is the transportation hub of Metrowest. Transit is important from the perspective of improving mobility for local residents, especially the elderly, youngsters, and one-car families, as well as its potential to contribute to the reduction of vehicular congestion and other problems by diverting commuter and local trips from automobiles. This section summarizes the existing services available in Town and subject to change within the context of the Master Plan. Thus, commuter rail, for example, is not included, since it is assumed to be a fixed parameter.

3.1 The Local Bus System

There are several transit services in Framingham. On the local level is the LIFT program (Local Intra-Framingham Transit) , provided by the Framingham Planning Department since 1954. The LIFT system has 5 bus routes, which run about 13 hours each day. Bus "1" serves Saxonville and downtown; buses "2" and "3" serve Union Avenue-Pleasant Street, the Industrial Park, and the north side of town. LIFT buses serve Route 135, and bus "2" will serve Route 126 on a demand basis. It is possible to call the LIFT bus "2" before it begins its loop and have it stop along Route 126. Bus "4" provides service to the malls running from Shopper's World Mall, to downtown Framingham, Callahan Center, through the elderly housing, Hastings House, and then to the malls. Bus "5" is an experimental intertown service serving Ashland and Hopkinton, including Hopkinton Industrial Park to Framingham. The price of the fare is \$.75 per adult; students pay \$.50; the elderly pay \$.25, and the cost of transferring once is an additional \$.10.

The majority of riders (50%) are elderly, others are adults and students. Few commuters to jobs in Framingham or Boston currently use the service, although Bus "5" carries some Ashland commuters to the Framingham Commuter Rail Station.

The response of riders to the bus services has generally been positive. Ridership has almost quadrupled since 1984. One request has been for greater efficiency of services. The Transportation Coordinator for the system suggested that for the population to make greater use of the available services, more public education is needed.

Routes "1-4" are funded by the MBTA Suburban Program and the Framingham Town Meeting. Line "5" is funded by the MBTA's Experimental Program (80% of required funds) and the line's own revenues.

3.2 Private Carriers, Local and Regional

Several private bus companies serve the Framingham area. The "Big W" bus line serves Milford, Ashland and Holliston, the Route 128 area, and the Industrial Park. The fare is \$1.25.

Marathon/Priority Express Bus Company provides two routes in the Framingham area. One runs between Worcester-Framingham-Boston, and supplies 15 busses a day beginning at 6 a.m. The other line has 13 busses per day which run between Framingham and Newton, also beginning at 6 a.m.

Peter Pan Bus Line provides transportation from Shopper's World to Logan International Airport. The service, sponsored by MASSPORT and known as the "Logan Express", operates a weekday service beginning at 5:30 a.m. until 10 p.m. running every half hour. Parking is available at Shopper's World in a lot leased by MASSPORT. The service carries 15,000 riders a month, with at least 40% of them during the first four morning trips. Ridership could increase with existing service as there is excess capacity on all runs.

Plans for a Transportation Center in the Framingham/Natick area are being developed by the State Office of Transportation and Construction. The Center would include extensive parking facilities and would serve MASSPORT, MBTA and other suburban Boston transit facilities.

3.3 Car Pools and Van Pools

Car pools and van pools, are well suited to suburban areas such as Framingham, where residential areas and work places are highly dispersed. They have potential to reduce commuter trips destined for Boston and Route 128, and reverse commutes to Framingham.

"Caravan for Commuters" is a non-profit organization which matches people who are interested in car and van pools, and provides information about other means of public transportation.

The number of Framingham-based car pools which have been created through the organization is undetermined. Several vans are rented through the Caravan office. Four vans, which are usually full, carry 15 people daily from Framingham to Boston. The routes are determined by the individuals in each van.

Some major employers encourage the use of van pools. The . Maxx Company sponsors several vans for its employees, one transports people from Worcester, another originates from Marlboro. New England Telephone, Framingham office leases four vans.

3.4 Issues

Local buses provide valuable service to those, such as the elderly and students, who are not otherwise mobile. In order for the system to alleviate traffic problems, drivers must be attracted from their autos. The MetroWest planning group suggests that improved public transportation would not solve the transportation problem but would help. A better connecting bus system between Framingham and Natick is needed, and an inter-mall/inter-office shuttle is also desirable. An example of one such successful project was the massive busing system for the Las Angeles Olympics. This system was responsible for taking a small percentage of cars off the roads but it significantly improved the traffic flow.

MetroWest suggested that it is necessary to concentrate on the major employers to promote ridesharing and other flexible transit measures. Most area corporations had shown disinterest in the concept of corporate sponsored ridesharing assuming that the percentage of decrease in congestion would be too insignificant to warrant the effort to organize car/van pools. However, evidence to the contrary suggests that alternatives to automobiles may be effective. An existing program that has potential to improve the situation is a subscription bus service for

employers, called SubBus. This provides service directly to the place of work according to a pre-arranged schedule. It involves a group of 40 or more riders who are picked up by private bus at a few locations near their homes and who work at the same or nearby locations.

The SubBus program is made available through the joint efforts of the MAPC, CARAVAN, the statewide non-profit ridesharing corporation, and the private bus operators of Massachusetts.

4.0 PARKING IN DOWNTOWN

4.1 Existing Conditions

Parking congestion has become an increasingly serious problem in Downtown, and is considered one of the factors constraining the revitalization of the area. The Town has been planning long-term important one has been the solutions to this problem, The most construction of the 296-car Pearl Street Municipal Garage, completed in the Summer of 1988. One of the typical problems found in areas like Downtown is that employees, arriving earlier, managed to occupy the most accessible parking spaces, closer to shops and stores. This discourages shoppers and patrons. The Pearl Street Parking ties for Garage was planned to provide long-term parking facilities downtown employees, which would open up closer parking spaces for short-term shoppers and patrons.

According to a Planning Department survey, there are about 3,100 to 3,500 employees working in over 300 businesses; 95 percent of them drive to work, 40 percent from within Framingham. Businesses provide private parking for about 55 percent of the labor force. This means the Pearl Street Parking Garage would of the labor force cover the needs of approximately 20 percent that relies on public parking.

Thus, the need for parking is first felt in on-street parking. The major areas where parking tends to be the greatest problem are Concord Street, Union Avenue, Irving Street, Hollis Street, and Waverly Street.

Even more serious is the perceived lack of parking for customers. No less than 83 percent of business felt that existing parking is not sufficient for their clients. 77 percent felt that this was a serious problem for their business; while 88 percent consider it a serious problem for the whole downtown. Since these statistics originate in a survey completed before the Pearl Street Garage was opened, there may be a difference as soon as this major facility is activated. However, the likelihood is that the perceived lack of parking remains as a major obstacle is the viewpoint of most businesses in the area.

4.2 Parking Facilities

4.2.1 Off Street Parking Facilities

A recent survey (1984) by the Framingham Planning Department found there were some 2,477 off-street parking places within the defined boundaries of Downtown. Of these, 1,200 spaces were determined to be conveniently located for shoppers and employees in the area. Since the time of the survey some spaces were lost due to the construction of the Municipal Garage on Pearl Street, but they were more than compensated for with the addition of this 296-car facility. On the other hand, the construction of an office building in the Memorial Building lot drastically reduced its capacity. About half of the total downtown off street parking spaces are restricted to users of certain buildings.

The survey confirmed that downtown parking areas are heavily utilized. A survey of the use of certain key lots (summarized below) found that the overall occupancy rate was 87 percent. Several lots had occupancy rates of over 100 percent, indicating that cars were parked in isles and driveways. In general, it can be said that parking areas downtown are used above capacity. (Capacity is defined at 85 percent to allow for turnover time).

TABLE 23: CAPACITY AND UTILIZATION OF KEY DOWNTOWN PARKING FACILITIES

Location	Capacity	Utilization (% of capacity)
MBTA Commuter Lot	130	100%
Hollis Court	132	20%
RR Sta (West)	20	105%
Fabric Place	50	116%
Kendall Street	52	67%
Arcade across from Town Hall	205	60%
Memorial Bldg	45	125%

Credit Union	10	70%
Franklin St. *	155	77
Total	799	

* Behind Hemenway Bldg. to Proctor St.
Source: Framingham Planning Department

4.2.2 On Street Parking Facilities

The Planning Department survey (1984) found there were 542 legal on street parking spaces conveniently located to serve downtown businesses, and that the overall occupancy rate was 54 percent. However, occupancy rates were above average on High, Concord, Park, Howard, Irving, and Hollis Streets. On street spaces are unmetered at present, but meters will be introduced in the Fall of 1988.

4.2.3 Parking Utilization

Parking spaces are needed for customers and clients of businesses and stores, employees of businesses and stores, municipal employees, and railroad commuters. Although there is a 2-hour restriction for on-street parking, many spaces are filled quickly in the morning by commuters and employees, leaving few spaces available for short term parkers customers. Hollis Court lot offers unrestricted time at 25 cents per hour, between 6 A.M. and 6 P.M.

4.2.4 Additional Facilities

Construction is now completed on the 296-space Pearl Street Municipal Garage. This facility, located just behind the Concord Street Shopping Area near the Post Office and Registry, is designed to alleviate some of the parking shortage by providing facilities for long term parkers. Rates will be established to attract these users, and monthly space rentals will be available.

Plans have been developed by the MBTA for municipal and commuter parking in the area of the commuter railroad station. These improvements, part of the MBTA's program to upgrade commuter rail facilities, will include 350 parking spaced for rail commuters and 170 spaces for municipal parking. Development of these areas has been delayed pending resolution of certain issues regarding Conrail operations. Although the MBTA has made construction of the new parking lots contingent on resolution of the Conrail issue, the portion of the project proposed for municipal parking has recently been paved to provide 100 spaces. This temporary solution will provide spaces for commuters.

As is known, zoning requires developers of new facilities to provide adequate parking spaces for the needs of the specific establishment or business: Exceptions are permitted by special permit for establishments which are close to existing facilities.

New establishments in downtown benefit from activities that are already there, and have a stake in the future success of the entire downtown. Current regulations, by focusing only on the direct needs of individual establishments, do not fully take these factors into account. Options exist for modifying current regulations, for example:

- Exempt developments from providing required parking by special permit, upon condition that the developers would contribute to a downtown parking fund.
- Require all developers in the downtown to contribute to a downtown parking fund.

SECTION IV: HOUSING COMPONENT

1.0 EXISTING CONDITIONS

1.1 Housing Stock

Framingham, at the center of the growing Metrowest region, has experienced a strong housing market. Although demand has somewhat slowed recently, housing prices are maintained at a high level. Because current zoning limits most new development to single family homes on individual lots, the market for new housing is increasingly limited to relatively high income buyers. Developers are responding to the market with the production of single family homes which are mainly located in previously undeveloped parts of Town.

Important characteristics of the existing housing stock are 1) a relatively large amount of rental housing for a community often conceived of as suburban; 2) a preponderance of new housing, that is, housing built within the past 40 years, compared with the Boston area in general, and 3) a dramatic contrast in development pattern between the northern and southern parts of Town. In particular, there is a heavy concentration of older housing and multi-family units in the area of town south of Route 9, but low density development and open land north of Route 9.

Almost 48 percent of the occupied housing in Framingham is rental housing. Fully one third of Town residents live in rental housing. The importance of rental housing may be surprising, given the perception of Framingham as a prototypical single family suburb. While overall, single family detached homes comprise only about half of the Town's occupied units, in the southern parts of the town, single family homes comprise less than one third of the total. (For this discussion, Census Tracts 3831, 3832, 3833, 3834, 3835, and 3840 comprise the south; 3836, 3837, 3838, 3839.01 and 3839.02 comprise the north.) Most rental housing is in larger buildings rather than small multiple units. Some 64 percent of rental units were in structures containing five or more units, according the 1980 census. In contrast, 2, 3, and 4-family dwellings only 25% of total rental units.

As noted, Framingham housing stock is relatively new. Framingham experienced most of its residential development during the post war period, particularly during the fifties and sixties. Fully three-fourths of the Town's total occupied units were built after 1950; over half of them were built between 1950 and 1970.

While the Town's overall development occurred throughout the fifties and sixties, multi-family development took place later, particularly in the early 1970's. Approximately one quarter of the total rental units were built between 1950 and 1970; another quarter were built between 1970 and 1974. Concerns over this rapid multi-family development led to the imposition of a moratorium on multi-family construction-

Differences between the north and south are demonstrated by contrasts in population density, amount of multi-family development and age of housing stock. The population density in the south is more than twice that of the north. As noted above, two thirds of the housing units in the south are rental units, in contrast to only one fifth in the north. Fully 88 percent of all the subsidized units (which are primarily in multi-family dwellings) are in the south.

Finally, the housing stock in the south is far older. In the south, 22 percent of the units were built before 1949; in the north, 7 percent were built before 1949. Many residents of the southern part of town feel that the development pattern is already dense, and that additional development should not be allowed.

1.2 Market Conditions

As noted, the Framingham housing market is considered strong, as shown by building rates, prices, vacancy rates, and rents. Demand, however, has slowed in the past 18 months. The rate of residential building activity in Framingham is shown by the record of building permits issuance over the last 17 years, below. Between 1980 and 1982, when interest rates were at record high levels, building was slowed; in 1984, permit activity recovered and has remained at a level of over 150 permits a year. The bulk of these have been for single family units. Between 1970 and 1977, the share of single-family housing was in the 70-80 percentage; between 1978 and 1987 the share increased to over 90 percent. Most of the permits have been issued for dwellings in the northern part of the Town.

TABLE 24: RESIDENTIAL BUILDING PERMITS, 1970 - 1987

Year	New Units	New Single-Family Units	% of New Units
1970	190	138	72

1971	259	207	80
1972	180	142	79
1973	119	109	92
1974	121	69	57
1975	54	44	81
1976	71	63	89
1977	77	115	67
1979	128	124	97
1980	83	80	96
1981	62	60	97
1982	71	63	89
1983	104	96	92
1984	181	171	95
1985	163	151	93
1986	163	153	94
1987	99	91	92

TABLE 25: RESIDENTIAL BUILDING PERMITS, 1984 - 1987 BY CENSUS TRACT

CENSUS TRACT	UNITS	
	Single Family	Multi-Family
South Side		
3831	2	8
3832	17	12
3833	7	12
3834	8	6
3835	33	
3840	49	
North Side		
3836		
3837	32	
3838	17	
3839.01	154	
3839.02	163	
TOTAL	508	38

Prices of homes have reached high levels in Framingham, just as they have throughout the Metropolitan area, in response to high levels of demand caused by the region's economic success and the maturing of the "baby boom" generation. The Town's policy to restrict the supply of rental housing has helped contribute to tight housing market conditions. Average house prices in Framingham are generally in the \$134,000 - \$190,000 range. At these prices, home purchase is available to those with annual incomes of at least \$45,000. But, according to recent conversations with local brokers, homes which are ten years old and less range from \$250,000 - \$500,000. Some new developments are priced much higher. On the south side, next to the Framingham Country Club, are 40 lots with homes in the \$600,000 - \$800,000 bracket; Doeskin Estates, a subdivision in the northwest part of town, ranges from \$500,000 to \$1.2 million.

High home prices are one indication of tight market conditions; low vacancy rates, and high rents are others. The rental vacancy rate was reported by the 1980 census at 2.8 percent, and an estimated 1 percent in 1984, a level among the lowest of any western suburbs. Within Framingham, vacancy rates vary somewhat, although they are generally low. Lowest vacancy rates are in the northwest; highest rates are in the southeast. Interviews were conducted in January, 1988 with local brokers to assess the situation in the rental markets. Levels, according to these local brokers, are in the following ranges:

- Studio apt..... \$400/month
- 1 bdrm. apt..... \$500-600/month
- 2 bdrm apt..... \$650-750/month
- 3 bdrm. apt..... \$1,000/month

luxury rental \$1200/month

As noted below, these levels are above those which many Framingham tenants can afford to pay. 31 percent of non-elderly and 48 percent of elderly households paid more than 30% of their gross income in housing (rent and utilities); and 14 percent of non-elderly and 25 percent of elderly households paid more than 50% of their gross income, in 1980. Almost 3,900 households were affected by high rentals compared with household income,

Condominium conversions are another indication of a strong housing market, and contribute to the tight rental situation. Condominium conversions are taking place at an increasingly fast pace, as shown below. The 1,405 converted units by 1985 represents fully 15 percent of the current number of rental units in the town. Condominium conversions are expected

TABLE 26: CONDOMINIUM CONVERSIONS

1972 - 1980	588	34%
1980 - 1983	324	19%
1985 -	493	29%
(Announced 1986)	300	18%
Total	1,705	100%

Source: Framingham Planning Department

1.3 Existing Zoning

The Town's Zoning Ordinance establishes the following residential districts:

District	Minimum Lot Sizes
General Residence	8,000 square feet
R-1 Single Residence	8,000 square feet
R-2 Single Residence	12,000 square feet
R-3 Single Residence	20,000 square feet
R-4 Single Residence	one acre

The uses which are permitted by right can be briefly summarized as follows: (The zoning text should be consulted for a complete listing). Uses in General Residence, R-1, R2, R3, R-4 districts include detached single family dwellings; home occupations; and uses by religious, charitable, and other institutions, under certain conditions. The Residential uses which are permitted in General Residence districts are also permitted in Business, Office and Professional Districts, and Planned Reuse Districts.

In addition to single family uses by right, the by-law allows several other types of dwellings by special permit. Conversions of single family dwellings to two family dwellings and accessory apartments are allowed in General Residential districts by special permit, and in single residence for houses built more than 50 years ago (March 15, 1939) also by Special Permit, but only if stated dimensional and parking requirements are met.

Unlike many Massachusetts communities, the Framingham zoning by-law does not permit flexible use of the land, development, such as cluster development, in which lot sizes can be reduced on the condition that open space is permanently preserved, without increase in density. Also noted, the Town has not allowed multi-family dwellings in any district, by right or by special permit, since 1973, except for two-family conversions mentioned above. The Town's ban on multi-family development, together with condominium conversions, have resulted in an absolute decrease in the number of private rental units. As condominium conversion took place, the multi-family family ban prevented development of replacement units.

Information assembled by the Planning Department shows that there were 9,750 private rental units in 1972; by 1985, the number had fallen to 9,367 units (See Table 27). The number of publicly built units increased during this time, so that the total number of rental units increased by 355 during the period. Owner occupied units, on the other hand, increased by 1,825 units.

Another effect of the multi-family ban has been an increase in of variance and special exception (permit) petitions to the Board of Appeals for conversions of existing units and accessory apartments.

TABLE 27: HOUSING STOCK, BY OWNERSHIP AND OCCUPANCY

Year	Est Total Tenant Occup Units	Est. Tenant Occupied Publicly Constr. Units	Est. Tenant Occupied Private Units	Est. Owner-Occupied Units	Est. Total Units
1970	7,846	1,434	6,412	11,588	19,434
1972	11,327	1,577	9,750	12,103	23,430
1973	11,433	1,577	9,856	12,371	23,804
1980	11,403	11,725	9,678	12,978	24,381
1985	11,682	2,315	9,367	13,928	25,610

2.0 Housing Needs

The need for affordable housing is a major problem in the Town. Extensive data analysis has been undertaken by the Framingham Planning Department to define the extent of the problems caused by high housing prices. While some of this analysis is based on 1980 census data, the results are useful. Highlights of this analysis include:

- Fully 3889 of rental households in the Town, or 35% of all renter households, paid more than 30 percent of their income for rent. An affordable rental unit is usually one which commands 30 percent of income or less. Fully 17 percent of the Town's rental households almost one fifth -- paid more than 50 percent of their income for rent.
- Tight rental market conditions are particularly serious in Framingham, compared with surrounding communities. Vacancy rates are among the lowest in the region. Demand for rental units, based on vacancy rates and employment, is almost four times as great in Framingham as in the nearby communities of Marlborough, Natick, Sudbury, Holliston, Wayland, Ashland, Hopkinton, Southborough, and Sherborn.

According to the Framingham Housing Authority:

- There is an inadequate supply of subsidized family housing, with 1200 families on the waiting list. The average length of waiting time is five years. There are 70 homeless families who lack shelter and must double up with friends and relatives.
- There are 381 elderly individuals on Framingham Housing Authority's waiting list for congregate housing. Of these people, 46% are non-residents. In addition, there are 175 low income elderly individuals who would choose to reside in Framingham if assisted housing opportunities were available,
- There are- 279 single disabled people requiring housing assistance.

Housing and social service agencies provided additional evidence of the problem, especially for lower income groups. The South Middlesex Association for Retarded Citizens (SMARC) reports a waiting list and compelling need for residential resources. More group residences, cooperative apartments and assisted units are needed. The rising cost of housing also makes maintenance of current services difficult.

The South Middlesex Opportunity Council (SMOC), an antipoverty agency, identifies the need for emergency shelter on a permanent, 24 hour basis for three to five families. The Department of Public Welfare has had to place homeless families in area motels. A study prepared by the Framingham Department of Public Welfare showed that, on an average monthly basis, between 16-18 families are homeless, showing the need for transitional housing.

2.1 Existing Housing Programs

The problem of affordable housing can be dealt with in two basic ways: 1) Provide housing directly, through programs such as public housing, rent subsidies, loans and grants; and 2) Adopt regulations and incentives to foster development of housing by the private sector. This section describes the former approach.

A variety of public and private non-profit housing programs exist to deal with the Town's housing problems. A total of 2,315 publicly subsidized units existed in Framingham by 1985. This number represents about 9 percent of the Town's total housing units. Framingham Housing Authority provides 1,008 subsidized units; private non-profit agencies provide 1,307 units.

In addition to these programs are those of private organizations, including the Affordable Housing Coalition, the SMOC - South Middlesex Opportunity Council, and Advocates, Inc., among others.

Despite these public and non-profit housing programs, the need for affordable housing is not being met. Trends indicate that these needs will continue, and that the private sector, through regulations and incentives, must provide a portion of affordable housing, especially for middle income persons.

2.2 Housing Issues

A housing analysis shows that:

- fully 48 percent of the housing stock in Framingham is rental housing
- residential neighborhoods in the south are perceived as overly developed by many citizens as compared with the north
- housing prices are high and beyond the reach of moderate and low income people
- the rental market is at 'no vacancy' levels
- conversions will keep the rental market tight

In addition, current policies in the Town are to:

- restrict the housing supply to single family units by banning
- multi-family dwellings;
- allow most new development in areas of town which are predominantly rural -- primarily the northwest;
- use relatively large amounts of land for housing -- given the one acre minimum lot size in most developable areas

Thus, the major housing issues in Framingham can be summarized as follows:

- The need to provide housing that is affordable for moderate and low income persons
- The need to use developable land appropriately, and to protect the rural character of the Town
- The need to protect existing residential neighborhoods from overly dense development.

These issues are likely to remain serious in the future.

Demographic trends indicate that the strong housing market will continue, thus placing pressure on both housing prices and the need for additional developable land.

3.0 Housing Demand Forecasts

Demographic trends are an important reason why affordable housing will continue to be a problem, and why pressures on developable land will continue. The key demographic trend is the progression of the huge "baby boom" generation -- those born between 1945 and 1960 - into the household formation-family establishment years. This same group caused large but temporary needs for elementary school classrooms, then high school classrooms, admissions to college, and so on.

The baby boomers' progression has been a major cause of the recent strained housing market, and will continue to be so. This is because the latter part of the baby boom, those born in the late 1950's and currently in their thirties, are placing high demands on the market for family housing.

The significance of the baby boom in the general population is shown in the age distribution table below. In 1980, the baby boom generation was included in the age charts 15-24 and 25-34 years, and comprised fully 36 percent of the total Boston metropolitan area population. In contrast, the 20 year segment, 35-44 to 45-54 of age comprised only 21.5 percent of the total population. In Framingham, the baby boomers comprised 37.3 percent of the total population; next older 20 year group, only 23.2 percent.

The impact of the aging of the baby boomers on Framingham population composition and hence, the housing market, is shown by the accompanying population forecast. The baby boomers, which includes those between 15-24 and 25-34 in 1980, will be in the age 25-34 and 35-44 categories in 1990. These two groups will increase by 15 percent and 45 percent respectively between 1980 and 1990. In contrast, the number of persons between 15-24 will decrease by 25 percent in the same decade; the number between 45 and 54 will decrease by 9 percent.

Between 1990 and 2000, the baby boom will result in an increase in the Framingham 35-44 age group of 8 percent, and 44-55 age of 52 percent. These increases will maintain pressure on the market for family housing through the 1990's. As noted previously, however, the sizes of households will be smaller than in the past.

On the other hand, the proportions of younger adults will decline. For example, the 25-34 year group will decline by 23 percent during the 1990's. This decline will affect the market for the small units typically occupied by young adults.

Framingham has many small units, built to accommodate the baby boom in its younger years. These units may become a glut on the market. While increases in the numbers of elderly will take place, the towns small units will not be appropriate for them. Increases are expected in those over 75 years, a group with specialized housing and service needs that are not met by the Town's small units.

TABLE 28: AGE DISTRIBUTION, FRAMINGHAM AND BOSTON, 1980

Cohort	Framingham		Boston SMSA	
	1980	%	1980	%
less than 5	3422	5.3	144,969	5.3
5-14	8262	12.7	377,214	13.7
15-24	12892	19.8	552,168	19.0
25-34	11371	17.5	469,729	17.0
35-44	7774	11.9	306,375	11.0
45-54	7338	11.3	291,081	10.5
55-64	6127	9.4	277,077	10.0
65-74	3941	6.1	197,683	7.2
75+	3331	5.1	147,061	5.3
TOTAL	65,113	100	2,763,357	100

TABLE 29: FORECAST OF POPULATION, FRAMINGHAM, YEAR 2000

cohort	1980	% change 80-90	1990	% change 90-2000	2000
Under 5	3442	19%	4884	-21%	3858
5-14	8235	-16	6753	2	6888
15-24	12,892	-25	9669	-21	7639
25-34	11,371	15	13,077	-23	10069
35-44	7774	45	11272	8	12174
45-54	7338	-9	6678	52	10150
55-64	6127	-11	5453	-5	5726
65-74	3941	9	4296	-10	4726
75+	3331	8	3597	12	4029

Source: Harvard-MIT Joint Center for Urban Studies

3.1 Potential Development Sites

As noted, it is important that the Town at the same time encourage affordable housing and direct development to appropriate areas, so that rural areas are protected and existing neighborhoods are not threatened. Several areas exist in Town where additional development could take place, including sites owned by the Town.

- The Northwest Quadrant. Over 600 acres of developable land exists in the Town's northwest quadrant. The area is now zoned for single family homes on one acre lots. Development of this area under current zoning would not alleviate the Town's affordable housing crisis, however, since the allowed single family homes on one acre lots will be expensive. Further, open space would be lost under the required lot-by-lot development scheme. The Town's Zoning by-law does not allow cluster development.
- Cushing Hospital, a 100 acre site, is unused at present. The area could be used for affordable housing, or some type of multi-use complex. Development need not affect property values in adjacent areas or neighborhood character if done well.

- Macomber Farm is a large piece of property, presently unused, and is the object of interest by Framingham State College, the Housing Authority, and private developers. Neighbors are aiming at preserving it as open space.
- Clark Hill is a site recently bought by the Fafard Company. It is currently underdeveloped, and contains approximately 400 acres of land. The site was purchased for about \$2 million.
- Town owned sites - A recent Planning Department survey of Town-owned sites evaluated their potential for affordable housing. Most potential sites were found in North Framingham. The inventory identified 6 Town-owned parcels for which housing is most appropriate use, and eight others with strong potential for housing development. In addition, two state-owned parcels were identified as having potential for housing development. The 14 Town-owned sites contain close to 50 acres of developable land.

SECTION V: LAND USE PLAN

1.0 ANALYSIS OF THE FRAMINGHAM ZONING BY-LAW

This analysis is concerned with the policies contained in the zoning by-law related to the types of development permitted, its intensity, and its location in the various zoning districts in the Town of Framingham. The analysis does not deal with the by-law's general provisions regarding parking, landscaping and site requirements, or special permit and site plan review procedures.

1.1 Single Residence Districts (R-1, R-2, R-3 and R-4)

Summary of major provisions:

Permitted uses: Single family residential, by right; conversions of single family residences in existence prior to 3/15/39 to two family residences, by right; home occupations; non-profit uses, by site plan review.

Density: 8,000 sf minimum lots (R-1); 12,000 sf minimum lots (R-2); 20,000 sf minimum lots (R-3); one-acre minimum lots (R-4).

Location: R-1 districts are mainly in the middle section of Town, south of Route 9; and in the eastern portion, north of Route 9. There is but one area zoned R-2, a small 'island' in the north part of Town, just east of Edgell Road. Two large areas zoned R-3 exist; one just north of the Mass Pike in the western part of Town; the other on the Sudbury boundary. R-4 districts include most of the 'northwest quadrant', and an area in the southwest part of Town.

Evaluation:

Permitted uses: These districts reflect the character of much of the developed area of Framingham--single family homes on lots of varying size. As such, the districts protect the character of the neighborhoods. By allowing conversions of older homes, the by-law allows for some flexibility. Additional flexibility could be gained by allowing accessory apartments by right, and conversions to three family homes by special permit.

Density: Lot sizes reflect the prevailing building pattern. Conversions in R-1 districts will increase density, and could cause problems of crowding and congestion. Consideration could be given to making such R-1 conversions by Special Permit.

The one-acre minimum lot size in R-4 should be re-examined, given the lack of sewerage and roads in the northwest quadrant. Development of that area at the permitted density on a lot by lot basis will necessitate extension of water and sewerage service, and road improvements to cover the entire area. Further, development of the northwest quadrant is not consistent with Town interests in preserving existing open space and remaining rural areas. It is strongly recommended that the town adopt a cluster zoning provision, which would allow the same amount of development to occur, but in a more efficient manner.

Location: To the extent the districts reflect the prevailing building pattern, the location is appropriate. Since only a tiny area is zoned R-2, it appears this district was probably established to apply to a single subdivision. For simplicity's sake, the district could be eliminated entirely and the area rezoned; however, since the area is so small, the district could be left as is, with little effect.

1.2 General Residence (G)

Summary of major provisions:

Uses: All uses allowed in Single Family districts; two family dwellings, by "exception".

Density: 8,000 sf minimum lots.

Location: G districts are exclusively in the southwest part of Town, with but one exception, a small area in Nobscot. G districts surround Downtown. South of the B& M tracks are extensive areas zoned G, interspersed with areas zoned M.

Evaluation:

Uses: Comments regarding accessory apartments in Single Family districts apply. The by-law is unclear (? to me, anyway) as to whether two family dwellings require variances or special permits. Special permits are preferable to variances; the by-law should be so clarified.

Density: The 8,000 sf minimum lot standard is appropriate in older, town center locations such as are many of the areas zoned G. Densities of 5-10 units per acre, depending on the balance between single and two family homes is acceptable from the standpoint of providing on site parking, small yards, and minimum amounts of open space. However, the prevailing pattern of development is more dense than permitted in some areas, particularly old areas and those in which public housing projects are located, Traffic congestion, inadequate parking, and absence of green areas and similar amenities are serious problems in some neighborhoods. Because of this additional development should be guided away from these areas.

Location: The location of the G districts in the south side is not inappropriate; however, the location of the adjacent M districts adjacent to them, while once justified to provide worker housing near the Town's manufacturing industries, is no longer appropriate. As manufacturing activity in the south side declines, these areas should be rezoned for residential use. Unless this is done, problems of incompatible adjacent uses can continue to occur.

1.3 Business Districts (B)

Summary of major provisions

Uses: A great variety of uses are permitted: all the residential uses permitted in General Residence G, with the same permit requirements; and, in addition, retail, offices, bakeries, barbers and other such services, all by right. In addition, a variety of uses are permitted by "exception": light manufacturing, theaters, gas stations, garages, hotels, truck terminals, restaurants, and bulk product retail sales such as lumber and building materials,

Density: 6,000 sf minimum lots, except in Central Business districts, where no minimum is specified. Maximum height is 6 stories, or 80 feet.

Location: B. Districts are located in the Downtown, Framingham Center, Nobscot, Saxonville, part of the Golden Triangle, and a strip along Route 9 between Framingham Center and the Golden Triangle.

Evaluation:

General: In these neighborhood centers and in downtown, multifamily residential development would be appropriate, to provide housing opportunities as well as activity and markets. However, multi-family is not permitted in these areas, since residential uses are limited to those allowed in General Residence districts. The Town should include multi-family as a permitted use, by Site Plan Review in these areas.

The existence of but a single business zone, plus the CB zone (see below), does not provide adequately for the great distinctions between types of business areas in the Town. Businesses in the Golden Triangle and Route 9 corridor, for example, are of far different character than those in Nobscot and Saxonville. The by-law should preserve these distinctions. The Town should establish business zoning that reflects the existing, and desirable hierarchy of business areas. This can be done by creating a Neighborhood Center district for areas such as Saxonville, Nobscot and Framingham Center.

The by-law text makes no mention of a Central Business district, except in the table of dimensional regulations. The map does not list the Central Business district in the legend, but does designate the Downtown area as "CB". For this analysis, it is assumed that uses permitted in B districts are permitted in CB district as well. This issue should be clarified.

Permitted uses:

The wide range of uses is likely to lead to problems of incompatible adjacent uses. The extensive range of permitted uses, ranging from housing to retail to industry to building material distribution might be appropriate in auto-oriented strip-type developments, where large lots and highways can separate various uses from each other, but are not appropriate in most of the areas of the Town which are zoned B. Not only is the range of uses too wide, but many of the permitted are not appropriate in the areas which are zoned B. Building materials sales and truck terminals, for example, would not be appropriate in Downtown, Nobscot or Saxonville, but are permissible under existing zoning by exception.

Residential uses are desirable in the Town's business areas. However, the type of residential use permitted is limited to single and two family homes, consistent with the uses permitted in the residential districts. Multifamily dwellings, and apartments in second and third stories of office and retail buildings would be desirable in Downtown and in the village centers, and should be allowed.

Density and other dimensional requirements:

The 6,000 sf minimum lot requirement is appropriate in areas such as Framingham Center and Nobscot, where most buildings are free standing. However, in Saxonville, many buildings are appropriately attached and extend to the sidewalk; this type of development should be permitted there.

The 6 story height limit is appropriate in areas such as the Golden Triangle and Downtown, but not in smaller scale areas such as Framingham Center, Nobscot and Saxonville. In these areas, a 3-story height limit is more appropriate.

Location:

The general location of business-zoned areas appears appropriate. Zoning reflects the existing pattern of village and downtown centers, and the Route 9 corridor. Business zoned areas are contained in the centers, with the exception of a strip zoned area north of Downtown along Union Street, reflecting an apparent policy to avoid strip development and to maintain the strength of the centers.

1.4 Office and professional Districts (P)

Summary of major provisions permitted uses:

Single and two family dwellings by right; offices with site plan review.

Density and other dimensional requirements: 8,000 sf minimum residential lot size; 6,000 sf minimum for other uses. Heights are limited to 3 stories.

Location:

Only very limited parts of the Town are zoned P. These areas consist of tiny 'spots', such as along Concord Street and west of Learned Pond near the hospital.

Evaluation:

General:

The significance of this district is minor, since such a small part of the Town is so zoned. The intent of the district seems to be to allow small, probably medical, offices in residential neighborhoods. The scale seems intended to be appropriate to those neighborhoods, and the site plan review requirement affords evaluation of the impact of office buildings on the area. Given this intent, and its specialized application, the uses, standards and locations of this district appear appropriate.

1.5 Light; Manufacturing Districts (M-1)

Summary of major provisions:

Uses: The full range of uses permitted in Business districts, except residential; labs, certain manufacturing, including clothing, leather goods, and machinery parts, bottling, stone works.

Density and other dimensional requirements: 6,000 sf minimum lot size; height limit 6 stories, or 80 feet.

Location:

There appear to be only two areas of Town zoned M-1: one is in the Golden Triangle; the other is at the western edge of Town between Route 9 and the Mass Pike.

Evaluation:

General:

Since the uses permitted in this district are somewhat more limited than those permitted in M districts, it appears that the intent of the M-1 district is to provide for a somewhat higher quality of environment, one akin to an industrial park suited to the needs of growing industries. Establishment of the M-1 district may have been in recognition that the economic base of the Town is changing from dependence on older, relatively small industries to larger ones with new requirements for space and environmental quality. If this is the case, the variety of permitted uses is too wide, and minimum required lot sizes are too small. The comments above about the overly extensive range of uses permitted in B districts apply.

Permitted uses:

See comments above. The wide variety of uses permitted are all by right uses; special permits are not required.

Density and other dimensional controls:

See comments above. Height limits are appropriate, given the location and apparent intent of the districts.

Location:

Areas now zoned M-1 appear suitable. Many areas now zoned M might better be zoned M-1 (all areas zoned M along Route 9 and in the Golden Triangle).

1.6 General Manufacturing Districts (M)

Summary of major provisions:

Permitted uses:

All uses permitted in B and M-1 districts; various wholesale operations; manufacturing of any description, as long as processes are free from neighborhood disturbing characteristics.

Density and other dimensional requirements:

Same as M-1.

Location:

M districts are located fairly extensively throughout Town, including the south side, the Golden Triangle and the Route 9 corridor in the west.

Evaluation:

General:

It appears the intent of this district is to provide for the older, traditional industries in the Town.

Permitted uses:

The range of uses is too wide, if problems of incompatible uses are to be avoided. The Town should provide for the needs of older industries, but should recognize that these industries are likely to have effects on visual quality, noise, and the like, and therefore, should limit the types of non-manufacturing uses that can locate in the district.

Density and other dimensional requirements:

The small minimum lot size (6,000 sf) requirement is consistent with the needs of traditional industries in the Town.

Location:

As noted above, many areas zoned M would be better zoned M-1. Further, certain areas in the south side, now zoned MI would be better zoned for residential uses. Many of these areas are underutilized for manufacturing purposes; numerous applications for variances for the development of housing in the M districts attest to the market for residential uses of these areas, Access to them by truck is poor; the advantage of rail access is no longer the advantage as it was once.

2.0 LAND USE PLAN

2.1 Introduction

Based on the objectives selected by the Town, on the problems and issues highlighted by the planning analysis and on the evaluation of build-out analysis and planning options, and on the shortcomings of the current zoning by-law, a land use plan was developed in order to answer this wide range of concerns.

The land use plan addresses land use proper as well as transportation, since as was already mentioned, traffic problems can often be ameliorated through land use controls. The land use plan is concerned with the establishment of more satisfactory community patterns, as well as of growth management techniques to better guide development.

The major elements proposed by the land use plan can be summarized as follows:

- Differentiation of business centers to create a hierarchy of centers which would fit better the needs of the Town and the region; growth management controls and incentive zoning are proposed to guide their development. Four types of centers are proposed: Neighborhood Centers (Framingham Center, Saxonville, Nobscot), Town Center (Downtown), Highway Corridor (Route 9 Corridor), and Regional Center (Golden Triangle).
- Introduction of multi-family housing in business centers, to encourage land use mix, vitality, and affordable housing opportunities
- Reduction of professional offices in areas outside of business centers, in order to protect adjacent residential areas and to strengthen the concentrated centers.
- Realistic delineation of manufacturing areas, sufficient to satisfy current demand for such land uses while allowing adjacent residential development.
- Residential areas which allows for protection of already built neighborhoods as well as for a more rational development of unbuilt areas to preserve open space; growth management controls are proposed in the form of open space residential overlays and inclusionary regulation are proposed to foster affordable housing. No multi-family housing is allowed in residential areas.
- Linking of the open space in the Town to form a system to maximize both preservation and recreation.
- Emphasis on traffic amelioration control measures, through encouragement of public transit, pedestrian environments, and the planning of transfer nodes with major parking facilities in the Golden Triangle (coordinated with Massport) and in Downtown (coordinated with the MBTA).

Following is a detailed discussion of the different features of the master plan,

2.2 Business Centers

It has been mentioned that the existing business centers are afflicted by several problems, which range from lack of zoning by-law differentiation to encroachment in residential areas, from vacancies in Downtown to apparently uncontrolled growth in Route 9. In all cases, it will be important to avoid commercial encroachment on residential areas and to minimize their traffic impact, At the same time it is also important to reap benefits, that these centers may potentially offer, benefits that range from property tax revenues to opportunities to locate multi-family residential uses.

The approach selected to plan the Town's centers was to analyze the "natural" role that each center should assume, based on location, size, specialization, and past history. In this way a hierarchy of centers could be developed, each level fulfilling a defined role in the Town and region--which could be reflected in the zoning by-law. The identification of the specific role of each center would permit a better fit of land use and transportation policies, a more controlled relationship with the surrounding residential areas, and more benefits to the Town.

Four categories have been identified:

- Neighborhood centers, relatively small nodes in scale with surrounding residential areas, aimed at satisfying daily needs of the immediate neighborhood. No through traffic should be generated from other areas and no pressure for development should threaten adjacent residential properties. Three of such centers have been identified: Framingham Center, Saxonville, and Nobscot. Each has special characteristics that gives them an individual atmosphere, within the generic scale of a neighborhood center.

- Town Center, a moderate sized center that concentrates other functions in addition to small retail or business uses and that serves specialized needs of the whole Town. This is Downtown, where municipal government functions and a regional transportation node are already located.
- Highway corridor, an automobile-oriented area along Route 9 which serves retail, multi-family, and employment needs of the Town and adjacent communities. Traffic generation and relationship with the surrounding residential neighborhoods are major issues. The development history and property values of this corridor are factors which assure its continuity; however, there is considerable room for improvement using a variety of incentive tools.
- Regional Center, a major center serving the regional needs for retail, employment, housing and transportation which has influences far beyond the Town's boundaries, This is clearly the Golden Triangle, which had become by default the "center" of Metrowest and which needs, in order to fulfill its potential and ameliorate its negative impact, a series of long-term land use and transportation policies.

2.2.1 Neighborhood Centers

Framingham has now a number of relatively small business centers which lack definition of their role in the community, have problems trying to compete with Route 9 malls, and impose negative impacts on the residential areas. The first step of the land use plan is to restrict this area of influence to the immediate neighborhoods. The second step is to find a series of specialties which would allow them to compete successfully. The third step is to try to reconcentrate them to allow both critical mass to emerge and to avoid future encroachment of residential areas.

By limiting their area of influence to the immediate neighborhoods, these centers would be able to find their best competitive position, specializing in services normally not offered in the larger regional malls. In turn, this "inward" shift would permit to develop more local identity, better physical environment, and less negative impact.

The Town should develop zoning measures to reconcentrate these neighborhood centers and avoid the sprawling of business uses beyond what is justifiable and necessary. Zoning requirements for buffers and clear boundaries between residential and non-residential uses would allow a better transition between uses.

Within each center, the two major planning aims are increases of the land use mix while controlling the intensity. Prominent among uses that should be fostered in neighborhood centers is housing. The land use plan proposes to allow by right multi-family units above stores --or exclusively. One of the purposes behind the introduction of housing in the small centers is to keep them alive 24 hours per day with a permanent resident population. Another purpose is to offer opportunities for the construction of affordable housing which would be far more viable in multi-residential structures than in other types of housing. Clearly, the establishment of residences within walking distance of stores would also increase their economic viability.

At the same time it is necessary to control the intensity of development, since, as was discussed, the existing zoning by-law allows the same development in all business areas, regardless of location. While the present floor to area ratio (FAR) of 0.32 appears adequate, building heights must be restricted to 3 stories maximum. Also, in order to prevent major projects and keep an adequate scale of development, there should be a limit of 10,000 square feet maximum per project. In addition, more generous landscaped areas must be required. As mentioned, each of the neighborhood centers would have particular characteristics which are reorganized in the land use plan, in addition to the requirements discussed above.

2.2.1.1 Framingham Center

There are two key additional elements in this center: the historical area of the Common and surrounding buildings to the north of Route 9, and the campus of Framingham State College to the south of Route 9.

The historical area of the Commons demands the establishment of architectural guidelines to assure the proper integration of future buildings in the center. Also necessary is the development of an urban design plan to assure the coherence of buildings, parking lots, and open space, with the historical area.

The existence of the Framingham State College strongly suggests that Framingham Center should also have a cultural specialization, which may eventually serve beyond the neighborhood boundaries - this would demand easier access to/from the College. Among other proposals, a much better pedestrian connection than what exists today (Edgell Rd. side walks) is necessary to link the north and south sides across Rte. 9. Access of students and residents to the small commercial center on the north side and access of the community to the College facilities and programs would add to the viability, richness, and vitality of Framingham Center.

2.2.1.2 Saxonville

This is the oldest settlement in Town, endowed with natural resources - Sudbury River, wetlands - and man-made resources in the form of old mills.

These qualities suggest the opportunity for the reuse of old buildings, including multi-family housing which should be allowed by right.

In those cases of reuse of old buildings, the limit of 10,000 square feet maximum size for projects in neighborhood centers should be waived, allowing the rehabilitation of the whole existing structure. If new structures are incorporated within the same project, the 10,000 square feet limit should be restated and applied to the whole project - old and new components.

Also necessary is the application of architectural and urban design guidelines to assure the proper integration of future projects and the strengthening of a small village atmosphere.

2.2.1.3 Nobscot

This is a small center adjacent to a low density residential area and large open spaces. It should retain a rural flavor, shaping up as the minor center of a hamlet, coherent with the surrounding development.

2.2.2 Town Center; Downtown

Downtown Framingham, the traditional seat of municipal offices and of the old retail center, has been trying to find a viable option for its future development, while struggling to deal with one of the most troublesome traffic intersections in Town.

The first step of the land use plan is to find a proper land use mix that allows Downtown to find a proper role and a competitive position. The second step is to propose ameliorative measures for its traffic problems. The third step is to reconcentrate Downtown, by elimination opportunities for office and professional uses to spread along Union Avenue.

The finding of a competitive role for Downtown includes several components. One component is the focus on retail services that are not usually found in large malls: specialties and neighborhood oriented stores that cannot cover the higher rents of Route 9 but that provide valuable services and a more varied center to the Town. Encouraging the development of these types of retail includes the amelioration of traffic congestion - but not diversion of traffic to other routes -, provision of convenient parking, a better physical environment, and a joint private-public campaign led by the local businessmen to organize outdoor fairs, special events, publicity campaigns and similar image-building programs.

Another component is the development of civic and cultural functions using the existing municipal facilities and activities. The large halls available in the Memorial Building should be made basis for community groups, organized available on a regular theater and music programs, as well as for films and various exhibits - artistic, scientific, historical, etc. If these events, which should be coordinated with the local businesses, are successful, specialized facilities may eventually appear, and, in any case, beneficial effects would be felt by other Downtown activities.

Another component of a proper land use mix is housing. The plan proposes to allow multi-family residential by right, either above stores or in exclusive buildings. As in the case of the neighborhood centers, the existence of a permanent population in Downtown would add vitality and social control at all hours, would constitute a consumer market for the local businesses, and could offer the opportunity for substantial numbers of affordable units. It should be noted, however, that the proposal to add multi-family units in Downtown is not limited to affordable housing, but to market and family units as well, based on its strategic location near a transportation node (the Commuter Rail Station) and the services of the town center.

As in the other centers, the land use plan aims at reconcentrating Downtown, to reduce the threat of business uses spilling over, encroaching into residential areas while draining the vitality of the center proper. In order to have a chance at revitalizing Downtown, it is imperative to achieve a critical mass concentrating activities in a core area. This means that the spread of professional offices along Union Avenue should be checked; many large homes could be reused for 2 or 3 family houses rather than offices. This approach would keep professional offices in Downtown

- where there is vacant space in second and third stories - while maintaining residential neighborhoods. As a side benefit, the reuse of large homes for 2 and 3 family houses could allow further affordable units. In any case, professional offices on the fringe of Downtown - and neighborhood centers - should have 5,000 square feet maximum size.

The existing floor-to-area ratio (FAR) of 0.32 is appropriate, as is the maximum height of 6 stories. The land use plan proposes to eliminate the existing requirement of 25 feet front setback for the Business-zoned areas adjacent to the Central Business, which does not require front setbacks. This would be consistent with the aim of keeping a downtown facade abutting the sidewalk line.

The major traffic problem experienced by Downtown is the delay caused by the train stop, coupled with the high volumes traveling along Concord Street. We should briefly discuss two "solutions" recurrently mentioned: a north-south bypass and track depression and/or relocation of the station to a new site. The north-south by-pass idea is based upon the notion of diverting through traffic along "another" route; this idea has been found to be impractical and invariable by several MDPW reports, findings which were corroborated by the Consultants. The Master Plan Consultants drove every potential north-south right-of-way and found that any bypass would involve unacceptable monetary and social costs in the acquisition of rights-of-way and construction of suitable roads, as well as in serious disruptions and land takings in residential neighborhoods. A somewhat related idea, that of an overpass above the tracks, was found by MDPW to have such serious effects as to potentially destroy the Downtown. The Consultants studied several options and concurred that the overpass was undesirable and unfeasible.

The depression of the railroad tracks and/or the relocation of the commuter rail station to a site farther to the west are equally invariable. The MBTA has completed engineering plans for a new layover facility, commuter parking, and new station at the existing site. The regional importance of the commuter, passenger, and freight rail traffic is an overwhelming parameter that has little, if any, probability of being changed.

In the study of Route 9 Corridor it was apparent that Concord Street would continue to see its traffic volume increase. This artery, which links Downtown with Route 9, is, today, the most heavily traveled street feeding Route 9; the forecasts and build-out analysis indicate that it will continue to be the most heavily traveled street. In 1987, almost 33,000 vehicles used Concord Street daily. In the year 2010, the increase would range from an optimistic increase of 32 percent to a pessimistic one of 64 percent if the Golden Triangle is built to the present zoning capacity. This means traffic volumes of 43,000 to 54,000 vehicles per day, with very limited options to increase its capacity - as is apparent in examining the proposed improvements included in the transportation element of this plan.

Clearly, a main thrust of the plan must be to reduce the volumes on Concord Street by providing options to some drivers before they enter the road and add to its congestion. The most critical times are the peak hours, when commuters coming to and returning from work lead to the most congested situations. The target of the master plan policies should be the commuters originating to the South of the railroad tracks that travel to Route 9 and the Massachusetts Turnpike, towards destinations that include Boston, Route 128 centers and Route 495 centers, predominantly. The share of Boston-bound commuters could be offered an option if enough parking were available at the railroad station. This should be satisfied with a parking garage spanning the air rights over the tracks and the layover facilities, with access from Waverly Street, to prevent the need to cross the tracks; access could also be provided from Park Street. This proposal is coherent with the MBTA current policy of building parking garages at commuter rail and rapid transit stations as a State strategy to reduce automobile trips into Boston during the Central Artery depression. This garage facility could function as a back-up for downtown parking needs.

Other traffic improvements, including reconfiguration, signalization, and rerouting, are detailed in the Traffic element of the Plan.

Finally, urban design of Downtown must be an integral part of its revitalization, in order to better integrate future projects and to add amenities to the streetscape. Among the specific objectives of an urban design plan is to properly link the proposed commuter garage with the Station and Downtown, to encourage commuters to use its retail and service establishments. Another specific objective of the urban design plan is to improve the quality of the parking lots, to rationalize and consolidate the many disjointed lots, and to use the newly completed Pearl Street Parking Garage as the western terminus of Downtown, carrying its aesthetic vocabulary - designed to relate with the 19th century commercial buildings - to the rest of Downtown as a unifying visual theme.

2.2.3 Highway Corridor

Route 9 has created a strip corridor that shows all the negative characteristics of countless other strip developments in the country. However, the property values and business destinations it has created make the Corridor a reality that is here to stay. The land use plan acknowledges it and proposes to face it constructively, by planning around the basic nature of its existence: automobile patronage. Within this parameter, there are many options for substantial improvement and amelioration of the strip negative effects.

In contrast with the other centers discussed before, the Highway Corridor is regionally oriented, with markets beyond the Town's limits. In contrast with the Golden Triangle to be discussed afterwards, this corridor is less subject to innovative changes. The land use plan aim is to "civilize" the auto-oriented strip.

One set of proposals is oriented to control the Highway Corridor, The current floor-to-area ratio (FAR) of 0.32 appears to be adequate, and no additional incentives will be offered. The current way of gaining access to each property is clearly incompatible with the traffic needs of Route 9; parallel service boulevards will be needed to reduce the large number of hazardous cut cuts. In a similar fashion, minimum lot size may have to be increased to one acre (from the current 6,000 square feet) in order to allow a more efficient use of the land.

A major control issue is its relationship with adjacent residential areas. The land use plan proposes to add minimum backyard setbacks, landscape requirements, height limitations to 3 stories within 100 feet of a residential property, and protection from outdoor lighting.

Another set of proposals are oriented to enhancing the environmental quality of the Highway Corridor. An important thrust is to increase the mix of land uses, very especially multi-family housing. As in other centers, residential uses over commercial floors will be accepted and even encouraged.

A major focus of the land use plan is to stress the need for urban design guidelines. Landscape requirements for parking lots will specify arborization between rows of cars. Stricter sign controls will introduce a level of coherence. Service access must occur at the back of the lot with sufficient screens.

Although the almost predominant access mode is and will be, the private automobile, the plan proposes to make room for future public transportation. Bus lines could efficiently move along the service boulevards parallel to Route 9 and take/discharge passengers at selected stops facing major destinations. This means that the service boulevards must have the capacity to install bus stop shelters, and that landowners and businesses should provide acceptable pedestrian sidewalks to the building entrance. Those recommendations aim at making the Highway Corridor accessible to elderly, youngsters, and one-car families as well as to encourage some of the patrons to avoid automobile congestion on Route 9.

2.2.4 Regional Center: The Golf Triangle

The Golden Triangle is now the second largest retail center in New England after Downtown Boston; proposed projects will further increase its business importance. On the other hand, its poor environment of endless parking lots and ad-hoc development will continue to affect its image; proposed projects are simply more decorated versions of the primitive shopping mall-in-the-parking' lot solution. In addition, continuous growth in automobile traffic will increase congestion on Route 9, Route 30 and other adjacent roads, as detailed in the Route 9 Corridor section.

The traffic forecasts coupled with the poor environment of the area are key factors behind the land use plan proposals for the Golden Triangle. The plan does not consider it a mere nuisance, or a mere source of property tax revenues, or of employment. The plan recognizes the potential of the area and, at the same time, faces constructively the solution of its many problems.

Signs of impending change are several proposals advanced by state agencies, most prominently a transportation node including a major parking garage and commuter buses, The land use plan acknowledges that this area is the urban center of Metrowest, the "new downtown" of several communities around Framingham. Thus, the plan envisions the transformation of this area towards a regional center that combines better opportunities for businesses, better jobs and tax base, better environments, and, in summary, a true community center with human scale, options and alternatives, and environmental amenities. Single developers, large as they may be, cannot implement such change. It is only the decision of Framingham (and its neighbor, Natick, which shares part of the Golden Triangle) that will make possible such a change, by establishing a series of joint public-private actions.

Land uses must move away from narrowly specialized ones, towards a richer land use mix. In addition to the current predominant retail and office uses, the new by-laws must allow other uses by right, such as hotels, theaters, and restaurants - which are now subject to the provisions of Exceptions. And, most important, the new by-laws must allow, indeed encourage, multi-family housing.

There are several arguments strongly supporting the proposal of allowing multi-family housing in the area: the location near a future major transportation facility (commuter parking and express buses), as well as a regional thoroughfare (the Mass Pike), is a strategic area for residential uses. Clearly, good location in the poor environment of the parking lots would not be enough to attract residential development; thus, the improvement of the environmental quality of the area and provision of amenities is essential. Additional benefits of establishing a local population in the regional center is that they would increase the consumer market for retail, entertainment and other uses without increasing the number of automobile trips. It is also conceivable that a number of people would choose this location for residence because of its nearness to employment, which would also reduce the demand for vehicular trips. Finally, a resident population would make the Golden Triangle a true regional center, by providing activities beyond the work hours.

On the other hand, several uses must be severely limited; uses that generate many automobile trips would be detrimental to the regional center adding congestion to the road system. Among others, gas stations and repairs, car rentals and fast food restaurants should be limited, allowing only a minimum number necessary to serve the local needs at established intersections.

A major change to evolve the Golden Triangle into a regional center with human scale, variety and civility is the establishment of an urban pattern. The existing condition is a primitive system of service roads feeding parking lots, within which buildings are located. There is no pedestrian environment, and people are discouraged from walking from building to building. A regional center of this magnitude requires a system of streets and boulevards to provide a suitable environment where pedestrians and vehicles could coexist, as well as to provide a physical framework to locate buildings in relationship to one another.

Clearly, this is not only a matter of zoning legislation, but of active definition of rights-of-way, construction, and maintenance. The Towns of Framingham and Natick must take the leadership in working with property owners to define rights-of-way and responsibilities for the development of a street system. There are several possibilities: Urban Systems funding should be explored; construction by property owners/developers in exchange for incentive bonuses is another promising option.

The development of a street system would truly "civilize" the Golden Triangle, by providing a radically better environment through arborization and pavements, wider choices for moving people - walking, taxis, buses, drop-off points, etc. - and the opportunity to integrate parking areas and buildings in a community pattern. In addition, curb cuts along Route 9 and Route 30 could be eliminated with a service boulevard, and open space could be provided in the form of linear parks in the center of a main avenue in the Golden Triangle. The plan envisions a grid with streets intersecting every 300 to 450 feet.

The pedestrian system could be continued over Route 9 and Route 30 by allowing developers to build bridges linking commercial structures on both sides of the road. These bridges must avoid the stereotypes of flimsy footpaths swept by the rain and wind; instead, they should be enclosed with retail spaces on both sides, so that people move from one commercial structure to another above major roads with minimum effort.

The provision of open space is a key amenity to making this area a regional center with mixed land uses. There are already substantial numbers of acres in wetlands, which should be planned so that they fulfill recreation purposes besides the present conservation purposes. In addition, open space of different types should be provided. Some open space must be established by the Towns of Framingham and Natick, as for example, the linear park in the main avenue of the Golden Triangle, and other parks and plazas that may be defined. Other open spaces should be provided by each developer, to satisfy the needs of local residents, employees, and patrons. It is proposed that the by-laws require one acre of open space for every 50 dwelling units, located within 300 feet of the residential area; and one acre for every 200,000 square feet of commercial space.

Transportation being a major concern, the plan completes the proposal for the regional center with two additional items: parking garages and public transportation. The aim is, obviously, to ameliorate the impact of the dramatic

increase in automobile traffic forecasted for the area. Thus, choices and options must be offered, within the limitations of the existing and future conditions.

The development of a public transit alternative in an area oriented to automobile traffic presents serious obstacles. The main one is that, regardless of the future concentration of activities potentially possible to achieve in the Golden Triangle, most trips originate in dispersed or low density residential areas, precluding the possibility of linking origin and destination with a public transit line. It must be assumed that, for the time being, residential patterns will be maintained without major changes; thus, no regional transit system is feasible as an alternative to the automobile in the short or medium range.

The proposed transportation node near the Mass Pike Interchange 13, which includes a major commuter parking garage and terminal for express buses, is a very positive improvement. The regional center must link its various activities with this node, to encourage drivers to use the Mass Pike, to transfer to public transportation at this point, and to use the regional center facilities in the process. The master plan must leave options open to, increasingly, link the regional center with additional public transportation systems that may be implemented in the future.

The replacement of parking garages instead of lots is also an improvement, because it would permit a more efficient use of the land and, certainly, it would improve the environmental quality of the regional center. State funding for parking improvements may be used by the Town to finance garages at "entry points", to reduce the traffic load within the Golden Triangle street system. In addition, incentive bonuses should be offered to developers, encouraging them to build parking garages - their higher cost would demand such incentives in order to make garages feasible.

Finally, there are other ways to replace public transit for automobiles. There is a substantial number of trips with origin and destination in the Golden Triangle: shoppers going from one mall to another, employees going from one office to a restaurant or a store, etc. Except for those driving along the so-called Flutie Pass, these drivers exit to either Route 9 or Route 30, perhaps taking a left turn or a U-turn and re-entering the commercial areas along Route 9 or Route 30. Their slow speed in the process of acceleration and deceleration, and in taking left and U-turns at signalized intersections, increases the congestion on Route 9 and 30 to a level proportionally much higher than their numbers.

These internal trips can be replaced, creating a public transportation system serving the regional center. Taking advantage of the proposed street system as well as of the accessibility of parking areas and commercial buildings to these streets, a public transportation system using buses could easily serve the whole Golden Triangle. Our initial estimates (included in the Regional Center detailed master plan) suggest that the peak demand would be 2,000 people per hour, increasing to 5,600 people at maturity, year 2010. If these trips were avoided, both the internal streets and Route 9 and Route 30 would be spared this additional burden. A tentative program indicates that a fleet of 6 buses would be sufficient to start the system, and that this fleet would increase progressively with demand, up to a maximum of 15 buses in the year 2010.

This system could be made part of the local bus system or could be operated by a joint public-private management authority. If this is the case, impact fees could be raised in proportion to the relative size of each development to defray the cost of the system. As in other cases, incentive bonuses could be offered to compensate developers and landowners for these fees.

The Regional Center is, really, a most unique area which demands unique growth management tools and implementation mechanisms. One set of such measures is a number of incentive zoning bonuses to encourage developers to provide the desired improvements and amenities, or to help pay for the required ones. Another set of such measures is a number of urban design guidelines which must be integrated in an urban design plan to guide the physical development of the Regional Center.

2.3 Residential Areas

Framingham is a mature town with neighborhoods of varying density. They range from G districts, predominantly in the South side and abutting some major roads, with 8,000 square feet minimum lot, to R-4 districts with one acre minimum lot, predominantly in the northern and western areas of the Town.

There are two major areas still open for substantial residential development, besides other minor ones. The most important undeveloped area is the Northwest Quadrant, and in second place the holdings of the New England Sand and Gravel in Saxonville. The undeveloped areas in the Northwest Quadrant are zoned R-4 (one acre minimum lot) and those in Saxonville are mostly zoned Manufacturing with lesser parcels under Residential uses.

The existing situation shapes two very different sets of problems which the land use plan addresses with different approaches. In built-up neighborhoods the issues are preservation and amelioration of negative impacts imposed by non-residential uses, such as commercial or institutional encroachment, on-street parking by employees, patrons, or students, and through traffic congestion. In undeveloped areas the issue is how best to develop the land including conservation of open space and integration with existing residential neighborhoods.

A third problem that affects both present and future residential areas, is the provision of affordable housing. A more detailed discussion of this issue is presented in the housing component; in the present section only those proposals related or relevant to the land use plan are discussed.

Preservation of existing neighborhoods is a major objective of the master plan. To some degree, this objective is assured through policies and programs proposed elsewhere. The reconcentration of neighborhood and town centers, the continuation of a limited floor-to-area ratio (FAR), and the limitation of building heights and project sizes would go a long way to protect surrounding neighborhoods. The proposed zoning by-law would include a 3-story building height limit within 100 feet of a residential property and the establishment of fences, landscaped buffers, and site lighting control in non-residential properties adjacent to residential ones.

Clearly, each area would face special problems. Union Street is now zoned for mostly non-residential uses, including Business and Professional Offices; the land use plan proposes to reconcentrate commercial uses in Downtown. The encroachment of Framingham State College in Framingham Center should be controlled through the provision of a new parking garage with direct access/exit to Route 9. The encouragement to reuse old structures for residential purposes in Saxonville would eliminate the threat of large scale commercial uses.

A major threat to residential areas, however, is the relentless increase of regional traffic which would affect many streets in Town. The analysis of Route 9 Corridor clearly indicates the potential impact likely to be felt on Concord Street, Edgell Road, and Temple Street, among others. It is obvious that the control of regional traffic patterns is beyond the capacity of the Town to implement. On the other hand, some traffic proposals would help to ameliorate those impacts: a commuter parking in Downtown, with access/exit to Waverly Street would reduce through traffic in Concord Street, for example. It is important to stress the urgent need for the Town to support future public transit proposals, which would be the most realistic way to reduce traffic impacts.

The undeveloped areas present different issues. The vast open areas in the Northwest Quadrant will not remain open forever. Although the soil is not the most suitable - there is ledge, wetlands, and other natural features that would make development more difficult - development will take place because of its location in the metropolitan area. The prospects, however, are not promising: according to the current by-law, the land would be parceled in one acre lots, trees destroyed, topographic features leveled. In summary, suburban sprawl would cover this natural resource. In addition, streets would have to be improved, and infrastructure extended, with considerable cost to the Town, developers, and eventually, buyers.

The Sand and Gravel parcels in Saxonville are close to this neighborhood center and abut the Sudbury river, with some of its area being wetland. Although a large portion of this holding is zoned Manufacturing, its location without direct access to major regional highways would not be suitable for the industrial and business uses allowed in the M districts; the generated vehicular traffic would be very disruptive for the surrounding residential areas.

The most suitable use is clearly residential. Most of the Saxonville area is zoned Residential 1 (8,000 square feet minimum lot), and thus, the master plan proposes to change the zoning of the parcels under the M district to a R-1 district. Though compatible with the surrounding uses, a residential development under the current zoning by-law would also suburbanize this large area, parceling it into one-fifth acre lots and eliminating any possibility of preserving some open space.

In order to use the last remaining open areas more efficiently and, at the same time, preserving sizable open space, the Master Plan proposes the establishment of an overlay "Open Space Residential Development" district, aimed at clustering development and preserving open space in perpetuity.

2.3.1 Open Space Residential Development

The purpose of this overlay district imposed over the whole Town is not to change existing densities - which would remain continuously valid - but to redistribute development over the land. Traditionally, suburban residential development has taken place by parceling the whole site in individual lots within which homes are built. This has proven to be a wasteful and inefficient practice in many circumstances, by eliminating all open space, forcing the construction of roads and, sometimes, water and sewerage (unless provided within the lot), and determining densities too low and patterns too dispersed to permit even bus lines to operate economically.

An increasingly desirable option is to legislate a type of cluster development option, to give developers a legitimate alternative in the use of land which may also benefit the community. The general concept of this option is to compute the number of units based on the underlying zoning district, but to allow the clustering of units in one or more areas, and the preservation of the rest of the property as open space in perpetuity. For example a 20 acre parcel in R-4 district (one acre minimum lot) could be developed with 20 dwelling units maximum, while in a R-1 district (8,000 square feet minimum lot) could be developed with 100 dwelling unit maximum. In any case, the developer must show the maximum number of lots possible to subdivide the property, accounting for wetlands and other areas not legally buildable - but possible to include in individual lots.

The cluster could result in various physical aggregations. The Master Plan recommends single family homes in private lots, but with the added benefit of large common open space areas. The areas designated as open space will be permanently used for conservation and recreation, and it will be legally impossible to build more units on them. Furthermore, the plan proposes to add the requirement that designated open space cannot be left over areas, but must be suited for active or passive recreation and accessible as a linked system.

Another by-product of the "Open Space Residential Development" overlay district is that it would make housing prices more affordable, by reducing site development costs.

2.3.2 Affordable Housing

It is clear that the goal of reducing housing prices to a level that is affordable to most of the population will not be reached through a land use plan alone. National and regional economic forces determine, to a large degree, the relationship between housing costs and family income. There are, however, some actions that the Town can undertake in order to assist the groups that are, increasingly, out of the housing market.

The master plan proposes to add an inclusionary zoning clause requiring developers of projects above a minimum size to provide an established percentage of affordable units, or to make cash contributions to the Town to support local housing programs. The text of the inclusionary zoning is included in the corresponding section, with the legal requirements.

As mentioned, the Open Space Residential Development overlay district is another way in which the Town could encourage the construction of lower cost housing units, because of their lower development costs due to fewer roads and less infrastructure.

Another important mechanism to encourage lower housing costs is the conversion to two and three family units. Currently, only houses in the General Residence district could be built or converted to two-family dwellings, and only subject to the provisions of Exceptions of the By-law; in Single Residence districts only houses built before 1939 can be converted to two- family dwellings.

The master plan proposes to liberalize the existing regulations in two ways. First, it is proposed that two and three family dwellings be permitted by right in General Residence districts, subject to a Site Plan review to assure proper parking, access, and use of outdoor space. Second, it is proposed to allow existing (large) houses to be converted to two-and three-family dwellings, by special permit, in the areas currently zoned as Professional districts.

Finally, the role of multi-family residential buildings must be examined in terms of, among other factors, their impact in generating affordable units.

2.3.3 Multi-Family Residential

For several years, Framingham has imposed a moratorium on multi-family buildings. The reasons for this drastic measure are not difficult to understand: row after row of apartment buildings abut Route 9 facing various water reservoirs in the western part of the Town, imposing additional traffic burdens and creating a visually poor environment. However, with proper planning and design guidelines and control by Town bodies, the moratorium could, and should be reconsidered.

With proper guidelines and enforcement, multi-family buildings could generate benefits. They are the building type most suitable to lower housing costs, they can create a critical mass to revitalize some business centers, as well as to justify public transportation lines. Based on these expected benefits, the Master Plan proposes to selectively allow multi-family buildings, under stringent controls.

In the first place, no multi-family will be allowed in Residential districts, in order to preserve the domestic atmosphere.

The Master Plan proposes to allow multi-family buildings in the following areas and within the following restrictions. In the neighborhood centers (Framingham Center, Saxonville, and Nobscot) multi-family will be allowed in two cases: reusing the upper stories of existing structures and building new structures under 10,000 square feet, with a maximum height of 3 stories. In Downtown, the maximum size limit is lifted and a maximum height of 6 stories is permitted; here parking requirements should be lowered to 1 space per dwelling based on proximity to the commuter rail station. In the Highway Corridor, new multi-family structures could be built, with maximum heights of 6 stories - 3 stories within 100 feet of residential property - and subject to Site Plan review.

In the Regional Center, multi-family buildings will be allowed within the new guidelines to be established for this area, including urban design guidelines, open space requirements, and similar ones. Due to the magnitude of the Regional Center, projects in this area will be subject to Site Plan review.

2.4 Manufacturing

Acknowledging the Town's goal of preserving industrial employment, it is clear from the regional economic study that manufacturing is a sector of decreasing importance in Framingham. This is verified in the residential encroachment of manufacturing-zoned land, especially apparent in the South Side. The objective of the Master Plan is to allow the continuation of viable industrial activities, while realistically changing the land use of areas no longer needed by these activities.

The main Manufacturing zoned land is concentrated in the South Side, where the major industrial employers - General Motors, Dennison - are located. This is the area, however, where residential uses spilling from the surrounding General Residence districts encroach into manufacturing land.

The master plan proposes to maintain manufacturing designation in the parcels actively used by G.M, Dennison, and other industrial firms, preserving for Manufacturing use lands along the various railroad tracks. It also proposes to change the use of surplus Manufacturing land to General Residence use.

Another manufacturing zoned land exists in the Golden Triangle, where several industrial and warehouse firms are located, The accessibility and development potential of this Regional Center translated in land values - would likely determine the future change of these parcels towards more profitable business uses.

Other minor manufacturing zoned land parcels appear elsewhere in Town, such as in Saxonville. The lack of direct access to highways and the reuse potential of several of these properties suggest their change towards more compatible uses with the surrounding areas.

2.5 Open Space

The Town has a number of conservation and recreation facilities, bodies of water, wetlands, and unbuilt open space, as well as a zoning category for Open Space and Recreation District, The Town, however, has no Open Space Plan.

Considering the importance of open space in a community, that the proposed Open Space Residential district is likely to generate further open space, that the Regional Center would have urban design plans and zoning requirements for open space, the master plan has addressed the issues with an initial proposal.

An objective of the master plan is to develop a system of open spaces, linking the various recreation and conservation areas in a coherent and continuous series of green areas. This initial proposal must be developed in a detailed open space plan which should also account for their maintenance and operation.

3.0 REGIONAL CENTER MASTER PLAN - INCENTIVE ZONING

3.1 Land Use

The selection of land uses is guided by the contribution of each activity to the Regional Center, encouraging those that would add vitality, variety, and amenities, while discouraging those that would impose negative effects, mainly those that have a high trip generation characteristic or that tend to be associated with poor environmental quality,

Among uses that would be allowed we should mention: retail, services, offices, banks, restaurants, theaters, hotels, recreation facilities, R&D other business, institutional and professional, and multi-family dwellings,; also ancillary, such as schools, churches, libraries, etc,

Among uses that are to be controlled we should mention the following. Medical offices tend to generate an unusually high number of trips, and so the plan recommends establishing a cap on this use. Fast food restaurants tend also to generate a high number of trips; the existence of restaurants in the area may make fast food establishments more suitable for the Highway Corridor and not the Regional Center. Gas stations, auto repairs, and sales/rentals should be limited to specific areas of the Center, near major highway intersections.

3.2 Housing

The introduction of housing in the Golden Triangle is critical to creating a true community center, with population and activities at all times of the day, generating a local market for retail and other commercial activities within walking distance, and, conceivably, offering a housing choice close to the workplace.

The attraction of this location for housing development is its high accessibility - next to the Mass Pike and the proposed State transportation exchange node with express buses. But this proposal could only be successful if all the other components of the proposed plan are also implemented: an urban pattern with street networks, a bus system, open spaces, and, in general, a human scale civilized community.

The existing floor-to-area ratio (FAR) of 0.32 and the requirement of one acre of open space for every 50 dwelling units would result in a net density of less than 20 dwellings per acre over the built area, and a gross density of 14 dwellings per acre over the property. This range corresponds to 3-4 story apartment buildings, or perhaps a combination of town houses and 5-6 story apartment buildings. In other words, the planning guidelines would allow multi-family residential buildings at a fairly human scale.

As positive as the introduction of multi-family housing in the area may be, it is important to assure that developers would be encouraged from the beginning to provide residential units within the Regional Center. Thus, it is advisable to provide incentive bonuses aimed at encouraging residential development. The Master Plan proposes to allow an additional 500 square feet of commercial development for each 1,000 square feet of residential space provided, on top of the floor-to-area ratio (FAR). The reason for using residential square footage and not numbers of dwellings is to not encourage the production of many small units, but rather a variety of apartments and town houses.

The urban design guidelines must provide sufficient latitude in the selection of housing types. As in the neighborhood centers in Town, multi-family dwellings could be developed above retail space.

The housing component in the Golden Triangle would be subject to inclusionary zoning clauses requiring a minimum percentage of affordable units, as in the rest of the Town.

3.3 Street Network

The major, and necessary, prerequisite for a civilized community is the existence of an urban pattern with streets - that is spatial channels for people and vehicles, with buildings abutting them, and urban activities taking place within their turfs.

The land use plan acknowledges the need to proceed with care in order to protect existing buildings and respect property lines. The plan also acknowledges the wisdom of implementing the construction of streets in phases, as redevelopment progresses. On the other hand, a street system, by definition, demands a minimum degree of continuity.

The Master Plan proposes to develop a street network along two paths, the first under the responsibility of the public sector, the second under the private sector within urban design guidelines.

The Town would select the right-of-ways for major boulevards, within which developers would create their own streets according to each project's requirements and urban design criteria.

The ultimate street network will be the result of these two sets of streets. The major boulevards determined by the public sector would form a major grid providing the basic orientation to the Center. Within the large blocks created by these boulevards, smaller streets would define normal blocks for buildings and parking facilities; developers would choose their optimal solution depending on the characteristics of each project. These smaller streets would create smaller, and more varied and flexible grids, set within the larger grid. This solution is scale with continuity and orientation on a large scale.

The requirements for the small streets is that they be located at a minimum of 300 feet and a maximum of 450 feet of distance from one another. This would define urban blocks of suitable size for development while creating sufficient intersections for corner activities. A developer would likely use several blocks for a project, by turning stores toward the street and linking them at sidewalk or, conceivably, at second floor level. It is also possible that a project may cover one or more streets to create a weather-protected mall.

The main grid of boulevards is to be defined by the public sector, choosing their rights of way, as much as possible, to avoid existing buildings and to follow property lines. It would be desirable to design these boulevards with a 30 foot minimum open space in the center to form linear parks. In addition, and based on similar boulevard standards, a service street should be located parallel to Route 9; the design guidelines should recommend that window shops and retail signs be oriented towards these service boulevards and Route 9.

The street system should be built and maintained by the local businessmen's association. Alternatively, the major boulevards could be built by the public sector and financed with impact fees; density bonuses could be included in the incentive zoning,

3.4 Open Space

A key component of a civilized community above a certain size is the provision of open space within its urban pattern. The land zoning by-laws, as described below.

In commercial developments, there should be one acre of open space for every 200,000 SF of built area, for enjoyment of employees and patrons. For example, there are currently 2,400,000 square feet of business and professional uses in the Framingham side of the Golden Triangle, which would have been required to provide 12 acres of open space; this would have represented less than 6 percent of the land area occupied by these buildings. Under build out conditions, 8,000,000 SF of commercial development would be required to provide 40 acres of open space, representing 7 percent of the land area.

In residential developments, there should be one acre for every 50 dwelling units for enjoyment of the residents and visitors. These open spaces should be located within easy walking distance, at 300 feet maximum for the dwellings. As an example, a hypothetical total of 500 dwelling units by the year 2010 would require 10 acres of open space; if housing is built at a floor-to-area ratio (FAR) of 0.32 - that is a density of 14 dwelling units per acre - then open space would represent 28 percent of the land area.

In addition, the Regional Center must include a system of pre-established open spaces. Wide boulevards with minimum 30 feet of green area would become linear parks. Key intersections would be shaped as (hard pavement) plazas or (green) parks. The existing wetlands must be open for the popular enjoyment while assuring their conservation,

3.5 pedestrian Bridges

The stress on the creation of pedestrian environments led to the need to solve the barriers of Route 9 and, to a lesser degree, Route 30. If Route 9 is depressed at the main intersections, it would be possible to install crosswalks for pedestrians - the local buses would also use these locations to cross the highway. But elsewhere it must be necessary to allow, indeed encourage, pedestrian crossings.

The conventional solution, a flimsy, open footbridge spanning two parking lots is neither viable nor desirable. Bridges should provide an effortless and enjoyable connection and, at the same time, be an integral part of the retail environment.

The Master Plan proposes to allow developers to build bridges - subject to State permission - to link stores on both sides of the highway. In those areas, buildings should be located next to the service boulevards, to reduce the perceived span of the bridge. Furthermore, access to the bridges should occur at a second level, as a continuation of an upper retail floor. Finally, the bridges should be enclosed.

In order to encourage developers to undertake the cost of providing bridges, the plan includes incentive bonuses. Retail space could be built on both sides of the bridge and at a mezzanine level above the bridge level. Bridges should be 15 feet minimum width, with 30 feet deep retail spaces at both sides in two levels. In addition, developers would enjoy the patronage benefit of increasing accessibility to both sides of the highway.

The construction of pedestrian bridges and abutting retail space would require, as mentioned, air rights permit from the State Department of Public Works.

3.6 Parking Garages

The strategic location of parking garages is an essential component in the development of a Regional Center. The commuter parking combined with express bus station proposed by MASSPORT near the Mass Pike Interchange 13 is critical to shift drivers from automobiles to rapid transit; this transportation exchange node should also be linked to the retail areas of the Golden Triangle to encourage the patronage of people changing modes.

There could be other public parking garages located at the entry points to the Regional Center, with the aim of unburdening its interior street system and allowing automobile riders to become pedestrians, taking advantage of its improved environment as well as of the possible public transit system of buses. These garages, which could be implemented by a joint public-private effort with (partial or total) State funding, should be phased within the development of the master plan for the area.

Finally, there are also private parking structures, to be built as part of the various development projects. Clearly, the replacement of garages instead of parking lots is a major factor contributing towards an improved environment. In some cases, increased land values and business opportunities, may lead those developers to build garages as part of their project package. In other cases, however, the additional cost of building parking garages would be a deterrent. Thus, the need to provide incentive bonuses for developers, aimed at encouraging the provision of parking garages.

Based on the marginal cost of parking garages over and above parking lots, as well as assumed construction costs and profits, the Master Plan proposes to allow an additional ,500 square feet of development for each car space provided in structured parking.

Furthermore, there are sets of urban design guidelines to control the construction of parking garages. If garages are fronting streets or near activities, the first floor of garages must be allocated to urban activities- Garage facades fronting streets should be designed compatible with adjacent buildings and their pedestrian vertical circulation (stair and elevator towers) ,should be directly and clearly accessible from the street sidewalks. Standards of security and safety, including maximization of visual control, natural and artificial lighting, must be closely adhered. Open parking lots should be landscaped following the same guidelines proposed for other areas in the Town, e.g. arborization between rows of cars, buffers, and pedestrian pavements.

3.7 Public Transit

As mentioned, amelioration of traffic conditions in the Golden Triangle through an increase in regional public transit is not viable because of the sprawling distribution of low density residential areas, here most work and non-work trips would originate.

However, there are areas where amelioration measures could be implemented, measures which should also improve the environmental quality of the future Regional Center. These measures are related to specific problems whose solutions are within the realm of possibility for the Town. One of the problems is the number of trips which originate and end in the Golden Triangle, the so-called non-home-based trips, that is, trips within the Regional Center. These trips are very disruptive because, as was mentioned in the land use plan, they require acceleration and deceleration while entering and exiting Route 9 or Route 30, or while undertaking a left or U-turn in them,

There have been some preliminary estimations on the number of automobiles undertaking trips within the Golden Triangle. Impact studies for proposed development projects in the area have forecast that 15 percent of trips to/from Shopper's World would arrive/depart via Flutie Pass (R. Keyes Assoc., Inc. 1987). A conservative forecast is that at least 20 percent of the trips to/from the Golden Triangle would have an origin/destination within it.

Further, it has been estimated that in an urban area between 100,000 and 250,000 population and for an average family income between \$25,000 and \$31,250/year, 24 percent of all trips are non-home-based, and that two thirds of these trips are auto driver trips (CTPS 1988). Within Metrowest, the Golden Triangle is the major origin/destination for non-home-based trips.

Currently, there are in the Golden Triangle approximately 11,000 parking spaces related to business uses, which would generate, according to the forecasts mentioned above, 2,200 internal trips per peak hour within the area. There are also 2,700 parking spaces related to various manufacturing uses which would also generate additional internal trips. (The estimates of parking spaces is based on the zoning requirements applied to the built space in each zone),

The built out of the Golden Triangle, based on the current floor- to-area ratio (FAR) of 0.32 would, as detailed in the corresponding section, increase the building area by approximately 70 percent. Parking capacity, however, could increase proportionally more, because the replacement of retail and offices instead of manufacturing would generate more automobile trips per built area; the plan estimates that a built out would double the number of parking spaces, from 14,000 to 28,000 in the year 2010.

If we continue to assume that 20 percent of the automobiles would be undertaking internal trips within the area then between 5,000 and 6,000 automobiles could be traveling within the Golden Triangle in the year 2010 at the peak hour. Even considering a lower share of 10 percent, almost 3,000 cars would be moving within the area at the peak time, involving almost 6,000 people. (As a comparison, the year 2010 congestion level capacity in Route 9 is 7,000 vehicles per hour). The plan proposes to actively encourage a fleet of buses to serve the whole Golden Triangle, focusing on the needs of people to move from one mall to another, or from one office to a restaurant or a store. There are four issues to be clarified: capacity, management, financing, and ability to draw patronage.

The capacity of this internal public transit system must be studied by the management and financial authorities. It is possible, however, to establish some ranges. At the present time, the peak patronage may be estimated to be in the order of 2,000 people at the hour of highest demand (10 percent of peak parking capacity, 2 people per car). Assuming a one-way trip time of 10 minutes, a bus with 60 seats capacity could move 360 people per hour. This represents a system of 6 buses running every 3-4 minutes at peak time; at other times some buses could be withdrawn for maintenance and repairs.

At built out in the year 2010, the peak patronage may be estimated in the range of 5,600 people at the maximum demand hour (10 percent of peak parking capacity, 2 people per car). Under the same assumptions of a 10 minute one-way trip time and 60 seat capacity buses moving 360 people per hour, the system would require 15 buses running every 1-2 minutes at peak time. This schedule at maturity would offer enough capacity to keep a number of buses in maintenance and repairs at off-peak time as well as to establish more than one route.

The management and financing of this public transit system is critical for its viability. The system could be operated by one or both Towns (Framingham and Natick) or by a businessman's association, or by a joint private-public

agency. Financing could be generated through impact fees levied in proportion to built space (or other parameters such as traffic generation). In order to encourage cooperation by local landowners and developers, incentive bonuses could be provided through the zoning by-law.

The incentive zoning should be established proportionally, based on the relative contribution of each property owner to the support of the public transit system. The incentive could be provided as bonuses for additional floor-to-area ratio (FAR).

In addition, the existing bus lines serving Framingham and Natick must be integrated within the Regional Center. Currently, there are two LIFT routes serving the area, from Framingham Green and Downtown to Shopper's World, BIG-W linking Shopper's World with Framingham, Natick, linking Shopper's World with Natick, MARATHON serving Worcester, Shopper's World and Boston (Park Square), PRIORITY linking Shopper's World and Boston and PETER PAN between Shopper's World and Logan Airport.

Finally, patronage could be developed for the internal bus system and others as well provided a pedestrian environment is created, with spaces at human scale, endowed with pavements, landscape, and street furniture that welcomes people. Spaces that, in addition, are well lit, visible, with plenty of activities around, to make people feel not only safe but also interested. In a word, the Regional Center needs streets.

4.0 IMPLEMENTATION

4.1 Open Space Residential Overlay District

In order to preserve and increase the amount of open space, as well as to reduce housing costs by limiting roads and utility lines, an Open Space Residential Zoning should be allowed in Single Residence Districts R-4 (one acre), R-3 (20,000 sq. ft.), and R-4 (8000 sq. ft.). (District R-2 is found in only one location and should be eliminated.)

The purpose of this zoning is to guide residential development toward a more rational, economical, and ecologically responsible pattern, Open Space Residential zoning is normally imposed over the existing zoning district, limiting the number of clustered units to that which would be allowed under the minimum lot area regulations of the underlying district.

The advantage for the community is that large areas of land would be free from development, remaining as open space in perpetuity. The advantage for the developer is that infrastructure costs would be drastically reduced since roads and utility lines can be shortened. This, in turn, could allow the lowering of housing prices (given certain market conditions) which would permit more affordable units.

The community should receive two basic assurances in order to agree to cluster developments. One assurance is that the open space will remain undeveloped in perpetuity. This is assured with special legal clauses, tested in court. The other assurance is that the open space must be usable and part of the Town's open space system. This is assured with planning guidelines and Site Plan Review.

On the other hand, the Town may want to offer incentives in order to encourage cluster developments. A possible incentive could be the granting of density bonuses, equivalent to an increase of 208 over the number of units that could be built according to the underlying zoning.

Open Space Residential Zoning should be applied town-wide, but its main effect would be felt in the Northwest Quadrant, where large areas of land remain undeveloped. An example will clarify the impact of cluster zoning in the area. Let us assume a 100 acre parcel, which, under the current zoning by-law for Residential District R-4, could be subdivided into as many as 100 parcels of one acre each, with a single family in each. No open space would remain for the community, and in all likelihood a large number of trees and topographical features would be destroyed. Under Open Space Residential Zoning with, let us say 10,000 sq. ft. lots and 20% density incentive bonus, there would be up to 120 lots with a single family house in each, occupying 28 acres plus a few roadways, Seventy acres would be dedicated permanently to open space.

The Master Plan recommends this overlay district for the whole town, but with variations within each underlying zoning district, as follows:

- In R-4 District (one acre) the minimum lot for clustered units should be 10,000 sq. ft., and the dwellings should be detached. single-family units.

- In R-3 District (20,000 sq. ft.), the minimum lot size for clustered units should be 8,000 sq. ft., and the dwellings should be detached single-family units.
- In R-1 District (8,000 sq. ft.) the minimum lot size for clustered units should be 5,000 sq. ft., and the dwellings could be attached single-family units, that is following a zero line lot regulation.

In all cases, the open space must be planned as a system, linked as much as possible with the Town's open spaces, and shaping meaningful areas for conservation and/or recreation. They will be protected from development by legal clauses that will assure their open space status.

4.2 Multi-family Residential

The Master Plan proposes to lift the multi-family ban in selected zoning districts and to attach a number of requirements to any proposed multi-family structure.

It is important that multi-family dwellings be allowed only in certain selected areas of Framingham. This proposal does not constitute a permission to, build throughout town. Most particularly, no multi-family dwellings should be allowed in any residential area.

The Master Plan proposes to allow multi-family dwellings only in the Business Districts, as part of a policy encouraging mixed uses. These districts are the proposed Regional Center, Highway Corridor, Town Center, and Neighborhood Center. In each of them, different constraints, regulations will apply as follows:

- In the Neighborhood Centers (Framingham Center, Saxonville, Nobscot), new multi-family structures will be limited to three stories high and 10,000 sq. ft. The existing floor-to-area ratio (FAR) of 0.32 will be retained. In the Town Center (Downtown), the height restriction is increased to six stories, the same as in the Highway Corridor. In the Regional Center, the development of multi-family structures must include the provision of open space nearby (one acre within 300 feet of every 50 dwelling units).
- In all these business areas, multi-family structures of up to six dwelling units would be permitted by right. Structures with seven dwelling units or, more would be subject to Special Permit as well as to inclusionary zoning to provide affordable units, as detailed in the corresponding section. Inclusionary zoning would a minimum of 10% affordable units; developers providing require 20% affordable units would receive a density bonus of 20% increase. This proposal is aimed at assuring that the lifting of the multi-family ban in selected business areas would have a positive effect of increasing the number of affordable units in the Town.

In addition, as was mentioned, the re-introduction of the population living in the various centers would go a long way toward revitalizing them, adding social control and activities at any time of the day, and strengthening the local market for the Centers' businesses.

4.3 Zoning Proposal for Inclusionary Housing

Purpose of the ordinance: To promote the public welfare by encouraging housing opportunities for people of all income levels, and in particular, by increasing the supply of housing that is available to and affordable by low and moderate income people, with emphasis on family housing.

Applicability: All structures consisting of seven or more units, including both new construction and rehabilitation of previously non-residential structures, would be required to contain a minimum percentage of affordable housing, with the one exception noted below. The required minimum would be 10 percent. Of this amount, half would be required to be for low income, half for moderate income, as defined below. Projects which propose to provide 20 percent of affordable units could apply for a density bonus through a special permit. The density bonus could not exceed 20 percent. This approach is intended to ensure that all projects provide at least a minimum amount of affordable housing, and to provide incentives to obtain amounts in addition to the minimum. The approach avoids the use of variances by specifying the use of the Special Permit process.

For example, a developer proposing a residential project containing 20 units would be required to provide two units (that is, 10 percent of the total of 20 units) of affordable housing. If the developer were to propose to provide an additional two units of affordable housing (that is, an additional 10 percent of the total of 20 units), he/she could apply for a bonus, not to exceed 20 percent, or four units (that is, 20 percent of the, the project would consist of 24 units, four of which would be affordable.

Under the proposed master plan, all applicable projects would have to be located in a Regional Center, Highway Corridor, Town Center or Neighborhood Center and all would require a Special Permit/Site Plan Review. In addition, all applicable projects can be considered to be increasing density above the level permitted by right, and therefore, can legally be subject to specific requirements, such as the requirement to include affordable housing. (The level to be permitted by right would be multi-family residential with up to 6 dwellings per structure.

The single exception to the 10 percent affordable housing requirement would be smaller projects, specifically those containing 7-12 units. Such projects are less likely to be financially feasible than large ones because land costs per unit are likely to be higher for smaller projects than for larger ones. In the case of these projects, the Special Permit Granting Authority (SPGA) could allow developers to make a payment to the Town instead of providing the unit. The amount of the payment, to be established by the SPGA, would reflect hard and soft costs, and a percentage of land costs. There is need for flexibility in applying the affordable housing requirement to smaller projects because land costs for smaller lots are likely to be higher than for larger lots. Per unit costs for land will in turn be higher for small projects.

While all projects, other than those containing 12 units or fewer, would be subject to the 10 percent requirement, the SPGA would be authorized by the ordinance to accept, at its sole discretion, payments on lieu of providing an additional 10 percent of affordable units in return for the density bonus. Such payment would be required to reflect all land, development, and soft costs, and would not represent a financial incentive to make payment rather than provide units.

All proposed cash payments should be evaluated by the SPGA based on financial analyses prepared by independent consultants, selected jointly by the developer and the Town and paid for by the developer.

As noted, projects would be allowed to seek a density increase above the level allowed by the proposed master plan by Special Permit. With this combination of requirements and bonuses, developers will be required to provide a basic level of affordable housing, and will be given the opportunity of a density bonus to enhance economic feasibility so that more affordable units result.

Density Bonus: As noted, projects providing 20 percent of the units as affordable housing can apply for a density bonus. In determining the density bonus--which could not exceed 20 percent--, the SPGA will give preference to projects which provide rental units. Rental housing is characteristic of the Town, but few rental units have been added recently. Encouragement of rental units will help preserve housing opportunities for the Town's large renter population. The SPGS will also evaluate the characteristics of the site and the neighborhood to determine if the proposed density is suitable.

The criteria used by SPGA's in other communities in reviewing applications for density bonuses are of interest. The following summaries indicate that most communities apply general site plan review criteria and affordable housing requirements as well, based on project by project evaluations by the SPGA.

Marlboro: Affordable Housing District Amendment Draft (3/10/88) :

It is not the intent of this Section that developments meeting the standards provided hereinafter shall receive automatic approval. Each project shall undergo review and be judged on its merits. The standards are basic requirements and shall not preclude the Town Council from specifying more stringent requirements when necessary for particular sites to protect the public health, safety and welfare and meet the intent of this Ordinance.

This paragraph is followed by standards regarding developers qualifications, avoidance of concentration of affordable housing projects in any one part of the Town; general planning criteria such as avoidance of environmentally sensitive and poorly served areas of the Town; and specified limits on height, density, profits, parking, etc.

Worcester: Inclusionary Housing

The Planning Board MAY permit an increase in the maximum number of units permitted up to an additional 25 percent, providing that 20% of the units are categorized as affordable housing.

Gloucester: Inclusionary Ordinance draft

No standards other than the project must contain the required number of affordable units.

Sandwich: Affordable Housing/Conditional Density Program Draft

The Planning Board will review all projects and shall normally recommend approval of the special permit if, in the Board's sole discretion:

- a) The Board is satisfied that the applicant has conformed to the design standards of this bylaw, and will deliver the needed affordable units.
- b) The proposed development site plan is designed in its site allocation, proportions, orientation, materials, landscaping and other features as to provide a stable and desirable character, complimentary and integral with the site's natural features.
- c) The Board makes a finding that such development, density detrimental effect on the character of the neighborhood or town and is consistent with the performance standards of Sandwich Zoning Bylaw, Article III,
- d) The proposed development is consistent with all municipal comprehensive plans and objectives,

Melrose: Special Permits for Multi-family Residential Use

General: The Planning Board as the Special Permit Granting Authority, may authorize a special permit designated a Design Review Permit to increase the permissible density of population or intensity of a particular use in a proposed development; provided that the petitioner or applicant shall, as a condition for the grant of said permit, provide certain open space, housing for persons of low or moderate income, traffic or pedestrian improvements or other amenities.

Conditions: Conditions for the grant of said permit shall include at least one of the following:

- a. Provision of open space in such amount and in such manner as the Planning Board shall require, may include the preservation of open space through placing of parking within or under the building .
- b. Provision of housing for persons of low or moderate income, as defined by the Federal Housing Authority, where such housing constitutes at least 10 percent of the dwelling units.

No other standards apply.

Newton: Inclusionary Housing Policy

Whenever a request under this section for a special permit from the Board of Aldermen seeks to increase the density of residential development for apartment houses., apartment hotels, garden apartments, or attached dwellings to a level greater than that allowable as a matter of right, pursuant to a subdivision plan prepared in conformity with the rules and regulations of the Newton Planning Board acting as a board of survey, and under the zoning classification for the subject parcel existing at the time of the request and without the grant of any special permit or variance, the board of aldermen shall require as a condition of any such grant of a permit, the provision, within the development, of low- income family and/or elderly housing units amounting to ten (10) percent of the development's total number of dwelling units.

Lexington: Inclusionary Housing Policy

Policy 4.10: In order to obtain a favorable recommendation, or where applicable, a favorable action, by the Planning Board, all new housing developments which gain an increase in density greater than that previously allowed by right in the zoning district in which it is located, shall provide affordable housing units, and shall comply with the policies in this plan.

Greenfield, Lincoln, and Grafton use review procedures similar to those in the Framingham Site Plan procedures. It is recommended that the ordinance condition special permits on the requirements for affordable units, and the extensive site plan review requirements that have been developed in conjunction with the 1988 zoning ordinance revision being undertaken by the Planning Board. These requirements include traffic impact analysis, water and sewer system impact analysis, and design considerations such as building scale and materials. It should be emphasized that the Framingham zoning ordinance as of June, 1988 does not contain a sufficiently rigorous site plan review process, and that the Inclusionary housing ordinance recommended here should be adopted only when a strengthened site plan review process is in place. In addition to site plan review, special permit applications for

density bonuses should be required to provide evidence of availability of state/federal agency commitment, and financial feasibility analysis. A paragraph similar to the Sandwich provision above should be included in the ordinance.

Target population: The target population should be selected based on two factors: 1) the need of the Town’s various income groups for housing which they can afford; and 2) the economic feasibility of private development of housing for the target groups.

As mentioned in the Housing Section, house prices in Framingham are generally in \$160,000 - \$190,000 range; house purchase is available to those with annual incomes of at least \$45,000 per year. Rental levels are equally above those which many tenants can pay; many households are paying between 30 and 50 percent of their gross incomes for rent,

From a practical standpoint, it is recommended that targeted income groups be based upon HUD SMSA income estimates, since these estimates are updated periodically. The category of households earning less than \$35,000 corresponds approximately to the group which HUD defines as earning less than 80 percent of SMSA shown below.

As of May, 1988, SMSA median family income is listed by HUD at 41,100. Estimated income for households with 80 percent of the MSA median by household size are as follows:

1 person	\$22,700
2 person	\$25,900
3 person	\$29,150
4 person	\$32,400
5 person	\$35,400

The inclusionary requirements can be targeted to low and moderate income households as defined below. During operation of the program, the requirements can be referenced to then applicable median income estimates of HUD.

- Low income:..... Less than 50% of SMSA income
- Moderate income:..... 50%-80% of SMSA income

Required percentages of affordable units: It is recommended that one-third of the units that are provided through the inclusionary program be for housing that is affordable by low income households, and two-thirds for moderate income households, Thus, in meeting the basic requirements for every project containing 7 or more units, 3.3 percent of the units would have to be for low income households; 6.7 percent for moderate income households.

When calculation of the requirement produces fractional units, an amount of 0.5 or more would be considered as requiring the production of one unit; an amount less than 0.5 would be considered as requiring payment of an amount equal to the applicable percentage of the cost of the unit.

Types of units required: Units are to be priced so that expenditures for housing (including principal, interest and taxes and, if applicable, for ownership units, and rent excluding heat and utilities) does not exceed 30 percent of the incomes of buyers and renters in the targeted population groups.

Any affordable housing unit to be offered for sale or rent to the general public shall have deed restrictions or some other legally enforceable instrumentality acceptable to the Planning Board ensuring its continuing affordability. The developer also may choose to offer the affordable housing units for sale to the Town of Framingham, or to a municipal or non-profit agency designated by the Town. Should no outside funding be available, the Town, at its option, may choose to appropriate the necessary funds. Should there be no outside funding, and the Town choose not to appropriate any funds, the developer shall make the units available for lease for a period of twenty (20) years through the Framingham Housing Authority to eligible tenants under any State or Federal rent subsidy program which might be applicable. The Town shall have the right to purchase all such units on the expiration of the twenty year agreement at a price equal to the paid for by the property owner, selected by the Town. Should there be no rent subsidy program, the developer or his/her designee shall select tenants from the Framingham Housing Authority waiting lists and may not charge, as rent, an amount exceeding 30% of the tenant’s gross income. Should the Framingham Housing Authority not have a waiting list or any eligible tenants, the landlord shall annually certify that the income of the low and/or moderate income tenants otherwise found does not exceed eighty (80) percent of the median family income for the Boston Metropolitan Area.

Long-term affordability: Low income units controlled by the FHA are to remain affordable indefinitely. Rents for units retained by developers and rented to eligible households are required to remain affordable to the designated income group for 30 years. Prices of units sold to eligible moderate income households are to be maintained at affordable levels through recorded documents. Prices will be determined by the percent below market level at which the unit is sold initially. The market value at the time of all subsequent resales for 30 years will be discounted by said percent, (Documented capital improvements made by the owner would be excluded.)

Location, quality and timing: Affordable units must not be concentrated in one area of the project and must be of comparable size and quality as the market rate units. Segmenting of projects in phases in order to avoid the requirements of this program will not be permitted.

Management: The FHA will be responsible for the management of the low income rentals placed under its control. (The issue regarding payment of condominium or other fees by the FHA to the developer has to be resolved.) A Framingham Housing Board will be established to control the disposition of payments received in lieu of housing units, manage moderate rental units, verify income eligibility, monitor resales, and perform other functions. This should be comprised of a member of the board of the Framingham Housing Authority, a member of the board of the Framingham Fair Housing Committee, a member of the board of a local non-profit development corporation, and a representative appointed by the Selectmen to represent the Town's housing interests. Professional staff assistance from the Town Planning Development would be provided to the committee.

Enforcement: No occupancy permit shall be issued for any market unit until occupancy permits for all required affordable units have been issued, or bonding arrangements for provision of the latter have been made.

4.4 Impact Fees

Throughout the nation a number of states have adopted legislation enabling municipalities to enact impact fees to mitigate the financial impacts of development. Generally impact fees are charges levied against a developer equal to the cost of off-site capital improvements required to service the development. In communities where impact fee systems are used, the criteria governing their administration are incorporated as part of the local zoning ordinance, and approval of a development is contingent upon payment of the fee. A community's use of the revenues derived from the fees is restricted by the purpose for which they are levied, and in most cases the law requires that they be expended within a fixed period of time after collection.

To date, there is little statutory basis in Massachusetts for communities to enact impact fees. A number of bills were introduced in the 1987 legislative session seeking amendment to existing statutes to allow communities to enact impact fees. These bills did not pass and were reintroduced in the 1988 session.

Despite the absence of explicit legislation enabling communities to enact impact fees, a number of communities in Massachusetts have used language contained in M.G.L. Chapter 40A, Sec. 9 as a basis for enacting impact fees to mitigate the impacts of development on local roadways. The language of this section states:

“Zoning ordinances or by-laws may also provide for special permits authorizing increases in the permissible density of population or intensity of a particular use in a proposed development; provided that the petitioner or applicant shall, as a condition for the grant of said permit, provide certain open space, housing for persons of low or moderate income, traffic or pedestrian improvements.”

Despite this fact, communities should be cautious if considering implementing impact fees under the authority of Sec. 9. The caution is suggested to avoid any legal challenges that may be brought against a community. Impact fee by-laws have been challenged in other jurisdictions and the standard of review established by the courts has been the “rational nexus” criterion. That is, there must be a reasonable relationship. This requires that the methodology used in calculating the fee be well thought out. Secondly, any revenues derived from the fee must be earmarked to benefit the new development and cannot be mixed with general tax revenues.

- Highway corridors in which impact fees will be effective should have the following characteristics:
- Capacity expansion within the corridor is possible. This has been well proven in the case of the Golden Triangle.
- The corridor is developing, but not fully developed. This is so true of the Golden Triangle.

- The corridor is not extensively used by traffic passing through the developing area, or supplementary funds are by impact fees. This is important only for impact fees designed to improve the actual highway, which is not the case in the Master Plan proposal.
- The Corridor is, or can be, a state designated highway. This is the case with Route 9.

Thus it appears that impact fees may be a promising path to Golden Triangle, which, as discussed before, is complemented with incentive zoning.