Planning Department
Community Development Division
City of Nashua
Nashua, New Hampshire

Adopted by the Planning Board on November 15, 2001
Resolution approved by the Board of Aldermen on December 26, 2001
The Elements of the Nashua 2000 Master Plan

I. Introduction
II. Goals and Objectives
III. Demographic Element
IV. Conservation and Preservation Element
V. Construction Materials Element
VI. Community Facilities Element
VII. Utilities and Public Services Element
VIII. Economic Development Element
IX. Industrial Element
X. Transportation Element
XI. Housing Element
XII. Land-Use Element

• Future Land-Use Map
I. INTRODUCTION

Nashua offers a very high quality of life, with a thriving economy, numerous high paying jobs, a revitalized downtown, beautiful parks, and quality residential neighborhoods. Nashua’s location has played a major role in enhancing its economy and quality of life. The City’s location on the Massachusetts border in a state without a sales or income tax has contributed to its success as a major regional and interstate retail destination. Its proximity to the greater Boston metropolitan area has contributed to its success as a major employment and residential center. Many residents take advantage of Nashua’s location as the gateway to New Hampshire’s wonders, whether for enjoyment of the great outdoors in the Lakes region or White Mountains, or proximity to the seacoast and the Portsmouth area. However, for a City to truly reach heights of greatness, it must offer a high quality of life within its borders, not rely solely on its proximity to other attractions. It is hoped that this Nashua 2000 Master Plan contributes towards a higher quality of life, and serves as a springboard for encouraging actions that will help ensure that Nashua remains the beautiful, thriving city that it is today.

Nashua last updated its city-wide Master Plan in December 1985. Since then, there have been many changes in the City which are documented in this Master Plan. In 1985, the City experienced significant growth in its economy and in built environment. After a recession-induced break in the late 1980’s and early 1990’s, the City is once again in the midst of a major economic expansion. The City’s rapid expansion began in earnest in the 1960’s, and except for short gaps due to periodic recessions, has continued non-stop to the present. This growth has contributed to the City’s high quality of life, but has not come without “growing pains” in terms of traffic, environmental, and social impacts. The City now has the opportunity to ensure that future growth proceeds in an orderly, well-planned fashion. The long-term, future character of the City will be determined by the manner in which growth occurs over the next 10 – 12 years. At current growth rates, most developable land will have been built on by the end of the next decade, and Nashua will become a mature community in which growth will be measured more by improvements in quality than increases in quantity.

Master Plans have three main functions. The first is descriptive. A Master Plan should not only make recommendations on topics such as community facilities, housing, and land-use, but should describe the current state of affairs in the City, and especially note changes since the last Master Plan. Each chapter of the Nashua 2000 Master Plan documents the current state of its particular subject.

The second function of a Master Plan is analytical. After noting changes that have occurred since the last Master Plan or census, several questions should be addressed. What does the data mean? Are there any discernable trends? What do the projections tell us? Is there a need for more facilities / zoning changes / further study? Given current trends or different scenarios, what will the future City of Nashua look like?

Lastly, the third function of a Master Plan is prescriptive. Based on the current situation, projections, and analysis, what actions and changes are recommended to bring about the most desirable future? Whenever possible, a Master Plan should offer several choices or options for reaching a future goal or outcome. The pros and cons of each recommendation can be compared, and it will be up to the pertinent decision-making body to choose among them.

In the State of New Hampshire, the main purpose of a Master Plan is to guide the Planning Board in the performance of its duties. RSA 674:2 states: “The Master Plan shall be a public record subject to the provisions of RSA 91-A, the sole purpose of which shall be to aid the planning board in the performance of its duties.” A Master Plan is therefore a policy document, and its recommendations do not have the force of law, as a Zoning Ordinance does. However, it is expected that the Master Plan will be consulted not only by the Planning Board, but all decision making bodies in the City when the Plan addresses topics under their respective jurisdictions.

In 1996, the City adopted the first components of an update to the 1985 Master Plan: the Nashua Urban Trails
Network and the Nashua Trails Plan and the Southwest Quadrant Master Plan. The Southwest Quadrant Master Plan comprehensively addresses that quadrant of the City, and is still that area’s guiding Plan. The Nashua 2000 Master Plan is not intended to supercede that plan. However, changes have occurred since 1996 that affect some aspects of the Southwest Quadrant Master Plan. These changes are pointed out in this Master Plan and summarized in the Future Land-Use element.

There are two ways in which the Nashua 2000 Master Plan makes recommendations. First, specific recommendations are found in the Goals, Objectives and Recommendations Chapter of each plan element. Second, each element presents topics that are recommended for further study. The primary function of a Master Plan is to give an overview of the current and possible future characteristics and physical layout of the community, and make recommendations as to how more desirable outcomes can be achieved. However, some topics, by their very nature, are more complex, and would have required lengthy research and consensus building before any recommendations could appropriately be made. In order to address these issues in a comprehensive manner and to involve the public in the decision-making process, it will be necessary to undertake special planning studies for these more complex topics. Topics and areas of the City recommended for further study are pointed out in both the various Elements and the Future Land-Use element of the Plan.

The Elements of the Nashua 2000 Master Plan, in order of presentation, are:

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III. Demographic Element
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The 2000 Census data for the City is anticipated by spring 2002. Upon receipt of Census data, it is recommended that Demographic Element be revised as needed. The Demographic Element included in this Master Plan is based on 1990 Census data and limited 2000 Census data that was available at the time of adoption, and other, more recent data sources, estimates and projections prepared by Planning Department Staff. Despite the use of more recent data sources whenever possible, the 2000 Census data will provide a more complete, accurate, and reliable data set from which to assess changes in the City’s demographic profile over the last decade. The 2000 Census data may also suggest areas for further study and recommendations.

Several public Vision 2000 meetings or workshops were held in spring and summer 2000 in order to solicit public comments and concerns on the contents and recommendations of the Draft Master Plan. This process was coordinated by the Nashua City Planning Board through the Master Plan Update Committee, a sub-committee of the Planning Board. Upon completion of the public review process, a final draft was completed. The Nashua City Planning Board held public hearings on the Nashua 2000 Master Plan per its authority under RSA 674:2 on November 8 and 15, 2001. The Planning Board adopted the Master Plan on November 15, 2001 and forwarded it to the Board of Aldermen for their adoption per the City Charter and related laws. The Board of Aldermen adopted the Master Plan on December 26, 2001.

This Master Plan is intended for use by the community as it plans for Nashua’s future. It is recommended that an Implementation Committee be formed to initiate the process of implementing the recommendations contained in this Nashua 2000 Master Plan. Pro-active planning will ensure the best possible future for Nashua’s residents, businesses, and physical environment.
II. GOALS, OBJECTIVES AND RECOMMENDATIONS

The following Overall Goal was adopted by the Board of Aldermen in 1995.

OVERALL GOAL:  Every effort will be made to make Nashua a desirable place to live by:

Providing:
- Excellent educational, cultural, and recreational activities.
- A clean and safe community with efficient, functional transportation.
- Balanced housing growth that allows the City to provide services and assistance to residents.

Promoting:
- A strong economic community.
- Comprehensive long-range planning and regional cooperation.
- Management of all our resources for the future.

Fostering:
- An informed and active citizenry
- Integrity in city government
- Fair and equitable treatment for all citizens.

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Conservation and Preservation
Construction Materials
Community Facilities
Utilities and Public Services
Economic Development
Industrial Districts and Industrial Policy
Transportation
Housing
Land Use

CONSERVATION AND PRESERVATION

GOAL:  Protect the ecosystems, wildlife habitats, and scenic resources of Nashua from degradation, and enhance their ecological value whenever possible.

1. OBJECTIVE:  WILDLIFE HABITAT, NATURAL ECOSYSTEMS AND WETLANDS
Protect the most significant wildlife habitats in the City, and link those areas, whenever possible, to provide wildlife corridors and contiguous areas of habitat.

**Recommendations:**

a. Identify and preserve areas of wildlife habitat in the built-up areas of the City.
b. Identify and map key wildlife habitats and corridors throughout the City, perhaps with the assistance of a State College or University, or the Natural Resource Conservation Service.
c. Encourage the protection of contiguous areas of wildlife habitat to provide corridors for movement, perhaps through the creation of greenbelts.
d. Encourage the protection of wildlife habitats through improved land use regulations, land acquisition, conservation restrictions and the setting aside of such land in Cluster Developments and Planned Residential Developments (PRDs).
e. Examine the feasibility of creating river corridor greenways, to stretch along the Nashua and Merrimack Rivers, and Salmon Brook. If such greenways should prove feasible, in whole or in part, develop an implementation plan to make it so.
f. Examine the state of the City’s wetlands to determine if the updated wetland regulations (1990) are having their intended effect, and if they need some fine-tuning.

2. OBJECTIVE: OPEN SPACE, SCENIC AREAS AND PASSIVE RECREATION

The City should strive to provide all residents of the City with adequate and accessible recreational space at a variety of levels, from City-wide and district parks to neighborhood playgrounds.

**Recommendations:**

a. The City, through zoning and/or land acquisition, should ensure that an adequate amount of open space is set aside for the enjoyment of citizens, as a relief from the built environment, and as wildlife habitat.
b. Protect and set-aside open space areas in each of the City’s quadrants, whenever possible, so as to provide relief from the built environment for all of Nashua’s citizens.
c. The City should strive to protect the remaining active agriculture and forest lands in the City, and assist landowners in safeguarding the economic viability of ongoing agricultural and forestry operations.
d. Preserve views along scenic roadways and into identified scenic areas.
e. Define appropriate uses, users and owners of structures on public lands.
f. Acquire additional open space areas. Emphasis should be placed on linking already existing parks, conservation areas and common open land into a network of open spaces that could be incorporated into a greenway or similar open space network.
g. Amend the Site Plan and Subdivision regulations to address the protection of existing vegetation (especially large trees) in development sites. Clear cutting or near clear cutting of vegetation should be prohibited.
h. Encourage the use of the Cluster and PRD styles of subdivision development, to enable greater amounts of open space in subdivisions.
i. Amend the Cluster and PRD sections of the Nashua Zoning Ordinance to increase the amount of open space required to be set aside and decrease the amount of wetlands that can qualify towards the total open space area.
j. Provide more areas for recreation, exercise or enjoying the outdoors by developing trails close to residential areas. More trails need to be developed in existing parks, along rivers, and in other natural and scenic areas.
k. Consider the development of a Nashua land trust to facilitate land acquisitions and conservation activities.
l. Consider designating the most rural and scenic roads in the City as official Scenic Roads per RSA 231:157.
m. Identify the most scenic areas in Nashua, and determine if the existing land use regulatory structure is sufficient to protect their scenic attributes in the face of development. If not, develop additional land use tools to protect these scenic resources for the enjoyment of all Nashua residents.
n. Aggressively seek out funding for trail development, trail maintenance, trail advocacy, and trail education.
Funding may come from several federal and state sources, or corporate, non-profit, and other sources.

o. Develop or relocate utility lines underground whenever possible, for both new construction and roadway reconstruction, in order to preserve or enhance visual quality.

p. Provide adequate parking at the points of access to all parks and recreational areas.

q. Improve and expand park facilities at the district, community, and neighborhood levels in relation to the distribution and composition of the population.

r. Continue to improve and maintain existing City parks, such as Greeley Park, Mine Falls Park, and Yudicky Farm.

s. Obtain additional park land, if possible, along Nashua’s waterways.


u. Develop criteria for the acquisition of additional parks and conservation areas, based on need, location, function, price and environmental features.

v. Support and encourage landowners to participate in the State’s Current Use Program.

w. Identify and make landowners aware of areas with high forestry or agricultural potential.

3. OBJECTIVE: DOWNTOWN RIVERFRONT

The City should take all necessary actions to ensure that its downtown riverfront is a dynamic and accessible social, cultural, educational, recreational, and economic resource for the City. A proactive approach would safeguard the riverfront as an inspiring and unifying element of downtown Nashua.

Recommendations:

a. Develop and implement an innovative plan for the Water Street Promenade Park.

b. Develop and promote a partnership with the property owners on the north bank of the Nashua River in order to secure conservation / recreation easements which will help to foster the use of this area for conservation, recreation and education.

c. Develop an aggressive grant writing initiative for the recreational, social and educational development of Nashua’s downtown riverfront.

d. Develop a corporate adopt-a-riverfront program.

e. Develop an educational program for Nashua’s riverfront so as to make community, education and civic organizations aware of the riverfront and to encourage them to program the riverfront in their planning and activities.

4. OBJECTIVE: HISTORIC RESOURCES

Preserve and protect the City’s historic resources; and review regulatory and other methods used to designate special districts and other potential historic properties

Recommendations:

a. Develop a mechanism to address the protection of historic landmarks and other historic structures and resources that lie outside of the Historic District.

b. Examine the extent of the City’s historic district and determine if its boundaries need to be modified.

c. Examine the historic district regulations to determine if they need to be modified or updated.

d. Develop a comprehensive database of the City’s historic resources, and determine the physical state of any surviving structures.

e. Develop appropriate signage for historic places and structures.

5. OBJECTIVE: ACTIVE RECREATION AND SPORTS

The City should strive to provide all residents of the City with adequate and accessible recreational space at
a variety of levels, from City-wide and district parks to neighborhood playgrounds.

Recommendations:

a. Implement the recommendations of the 1999 Nashua Recreation Master Plan.
b. Improve and expand park facilities at the district, community and neighborhood park levels in relation to the distribution and composition of the population.
c. Identify and address any deficiencies that may exist in City-owned recreation facilities.
d. Balance the use of the City’s recreational facilities among all the citizens of Nashua.
e. Evaluate the role of organized adult sports in the future of the city’s recreational goals.
f. Define appropriate uses, users and owners of structures on public lands.

g. Continue to improve and maintain existing City-owned parks and recreation areas.
i. Require developers to set aside adequate amounts of accessible and usable recreational land within subdivisions and on large non-residential tracts, where advisable, through the subdivision and site plan approval processes.

j. Improve access, where advisable and needed, to existing City-owned parks and recreation areas.
k. Provide new and expanded programs at existing City parks and recreation areas that keep up with national recreation trends (i.e. rollerblading, mountain biking, fitness courses, etc…)
l. Address overuse and degradation of City Parks such as Mine Falls Park and Greeley Park by developing and implementing a recreation Master Plan for each park.
m. Ensure that public swimming facilities are easily accessible to the entire population of the City, and build additional pools where needed.
n. Consider developing additional park space and active recreational sites on the site of vacant buildings and lots in the downtown and urban center.

6. OBJECTIVE: NASHUA RIVER AND TRIBUTARIES

Maintain and, if possible, enhance the water quality of and public access to the Nashua River, so that the River becomes a prime asset in Nashua’s quality of life.

Recommendations:

a. Consider adopting a local shoreline protection district to supplement the State’s Shoreline Protection Act.
b. Consider developing a management plan for that portion of the Nashua River that flows within the City’s borders.
c. Consider working cooperatively with the other cities and towns in the Nashua River watershed, perhaps by taking a more active role in the Nashua River Watershed Association.
d. Address combined sewer overflows (CSOs) such that no untreated wastewater enters the River.
e. Develop a Riverfront Park (located off of Water Street on the south bank and Franklin Street on the north bank) as a way to bring citizens into contact with the River and highlight its importance to the history and character of the City.
f. Investigate and mitigate any adverse effects of groundwater quality on surface water quality.

7. OBJECTIVE: MERRIMACK RIVER AND TRIBUTARIES

Maintain and, if possible, enhance the water quality of and public access to the Merrimack River, so that the River becomes a prime asset in Nashua’s quality of life.

Recommendations:

a. Take an active role in the Merrimack River Emergency Notification Network, in the event of a serious chemical spill or release into the River.
b. Consider a local shoreline protection district to supplement the State’s Shoreline Protection Act.
c. Develop a management plan for that portion of the Merrimack River that flows within the City’s borders.
d. Work cooperatively with the other cities and towns in the Merrimack River watershed, perhaps by taking a more active role in the Merrimack River Watershed Council.
e. Address combined sewer overflows (CSOs), such that no untreated wastewater enters the River.
f. Consider developing a Salmon Brook greenway (greenbelt) as a way to safeguard this important tributary to the Merrimack River. Provisions for public access, such as canoe landings and hiking trails, should be developed wherever possible and appropriate. In already developed areas, easements and protection restrictions could be developed.

8. OBJECTIVE: LAKES AND PONDS

Safeguard the water quality and wildlife habitat functions of Nashua’s lakes and ponds. Provide public access and water recreation opportunities where appropriate.

Recommendations:
a. Target Lovewell’s Pond as a high priority conservation area, due to its presently unspoiled nature. Now that the City has acquired the land surrounding Lovewell’s Pond for conservation, it should develop a management plan for this land that aims to protect water quality and wildlife habitat, while providing public access to this unique water resource.
b. Undertake an inventory of all permanent ponds in Nashua, noting their characteristics, and any threats to their shoreline and water quality.
c. Undertake an inventory of vernal pools, and develop a management plan to safeguard them from any water quality or development threats.

9. OBJECTIVE: WATERSHED MANAGEMENT

Take the broad watershed management approach to water quality protection.

Recommendations:
a. Identify all watershed and sub-watershed boundaries within the City limits and map them on the City’s GIS system.
b. Identify potential contamination sources (PCSs) within the watersheds. Develop a watershed management plan for the major watersheds (i.e. Nashua River, Pennichuck Brook, Salmon Brook, Cold Brook, Merrimack River).
c. Address combined sewer overflows (CSOs), such that no untreated wastewater enters the River.

10. OBJECTIVE: GROUNDWATER PROTECTION

Safeguard the quality and quantity of groundwater in the City, both as a source of drinking water and for other uses, such as fire protection.

Recommendations:
a. Identify and map all stratified drift aquifers within the City, noting which ones reach beyond the City’s boundaries (intermunicipal aquifers).
b. Develop an aquifer / groundwater protection plan for the areas where private wells are used as a drinking water supply, and also for those areas (particularly in northwestern Nashua), that may be suitable for public water supply wells.
c. Investigate and mitigate any adverse effects of groundwater quality on surface water quality.
RECOMMENDATIONS FOR EXISTING PARKS AND CONSERVATION AREAS

Greeley Park:
  a. Where feasible, develop formal walking and biking trails to replace the informal trail network that currently exists along the Merrimack River.
  b. Develop a floodplain forest interpretive trail in the vicinity of the Merrimack River.

Mine Falls Park:
  a. Conduct a comprehensive natural resource and wildlife inventory to document the ecosystems and plant and animal species found in the Park. Such an inventory would provide baseline data on the Park’s natural features and biodiversity that could be used as a “yardstick” to measure potential adverse impacts of certain human activities in the Park.
  b. Once the natural resource and wildlife inventory is completed, a management plan for the Park should be developed. The management plan should seek to balance human use of the Park with its value as wildlife habitat.

Yudicky Farm and surroundings:
  a. Conduct a comprehensive natural resource and wildlife inventory to document the ecosystems and plant and animal species found in the Park. Such an inventory would provide baseline data on the Park's natural features and biodiversity, which could be used as a “yardstick” to measure potential adverse impacts of certain human activities in the Park.
  b. Once the natural resource and wildlife inventory is completed, a management plan for the Park should be developed. The management plan should seek to balance human use of the Park with its value as wildlife habitat.
  c. The City should hire a forestry consultant to determine if thinning certain forest stands in Yudicky Farm, Southwest Park and surroundings would improve wildlife habitat, recreational use, and the appearance of those areas. Yudicky Farm contains many young, dense white pine stands. The value of these stands for wildlife habitat and recreation may be improved by selective thinning.
  d. The City should conduct a natural resource/wildlife inventory and develop a management plan for the newly acquired land surrounding Lovewell’s Pond. Lovewell’s Pond is perhaps Nashua’s most unique natural area. If human use of this area is to increase, careful management is necessary.
  e. The City should explore the feasibility of an extensive trail system, which would connect the trails in Yudicky Farm to the recently acquired parcels in its vicinity. If such a trail system appears feasible, the City should seek to implement it in the near future.

Roby Park:
  a. An informal network of trails currently exists within the forested area of Roby Park. The City may want to “formalize” these trails through signage and trail improvements.

Horrigan Park:
  a. The City should consider purchasing the small, residentially-zoned property to the immediate west of Horrigan Park, which would extend the Park and allow for a small parking area. At present, official parking and access into the Park is lacking.

Other conservation areas:
  a. The City, perhaps through its Conservation Commission, should undertake a survey of all of the small, City-owned conservation areas scattered throughout Nashua. Many of these small conservation areas are relatively unknown and some may be suffering from misuse and degradation.
  b. Once these properties have been surveyed, a regular monitoring schedule should be set up to ensure that the value of these properties in providing wildlife habitat and green space is not compromised.
LOCAL CONSERVATION PRIORITIES

a. The conservation priorities identified through the REPP process should be re-examined by a wide range of City boards, officials, and the public. If, after such review, it is determined that the list of local conservation priorities needs modification or refinement, then the City should undertake such refinements before further work on the REPP is conducted.

b. The City should solicit input from the owners of land currently identified as priorities through the REPP process. If the list of priority parcels is modified from that presented in this Plan, then those landowners should be contacted for their input, as well. If effective conservation arrangements are to be worked out, it is imperative that the City work closely with the owners of land that is identified as priority for conservation.

c. The City needs to refine the location of priority parcels along the Merrimack River (REPP priority # 4) before additional work can be undertaken on that particular project.

REGIONAL CONSERVATION PRIORITIES LOCATED IN NASHUA

a. The City should carefully consider the acquisition, or protection through conservation easements, of the properties identified as regional priorities through the REPP process. The parcels along the Nashua River, in particular, deserve careful consideration.

OTHER AREAS TO CONSIDER FOR PROTECTION

a. The City should consider the acquisition, or protection through conservation easements, of the “other” areas mentioned in this Plan. The protection of these areas would provide additional green space and wildlife habitat in developing areas of the City.

URBAN TRAILS

a. In addition to the trail network centered on Yudicky Farm, the City should consider an urban trail connection from Mine Falls Park (which would link up to the “Nashua Heritage Rail Trail”) to the Massachusetts line south of Groton Road. This trail would connect to the Ayer/Pepperell rail trail being developed in Massachusetts.

b. The City should consider building pedestrian / bicycle bridge(s) over the Nashua River in the general area shown on Map IV - 5. Such bridge(s) would greatly expand bicycle and pedestrian options and enhance public safety. Broad Street (Route 130) is much safer for pedestrians and bicyclists after its recent widening, and a bridge(s) over the River would allow for a loop trail system on both sides of the River. Elements of this loop trail would include the Downtown Connector, the trails in Mine Falls Park, the bike / pedestrian trail along the Broad Street Parkway, and on-street trails using West Hollis Street (west of Mine Falls Park) and Broad Street. Also, a pedestrian bridge is needed that crosses the river at the Hydro Dam, located behind the Public Works garage. This will link together the two high schools and their sports fields.

WATER RESOURCE PROTECTION RECOMMENDATIONS

a. In order to protect groundwater used as a drinking water resource, the City should reconsider the minimum lot size of lots relying on individual septic systems. Recent studies have shown that in most situations a larger area is needed to adequately protect groundwater from contamination.

b. Train local inspectors to inspect for and enforce Best Management Practices.

c. The City should strongly consider adopting a soil erosion and sediment control ordinance, which would comprehensively address many of the non-point sources of water quality degradation discussed in the Water Resources Protection Plan.

d. The City needs to take active steps to increase treatment and recharge as redevelopment takes place in the watershed.

e. The City needs to continue improvements to the storm water system along Route 101A, so that the storm water is treated before it is discharged.

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CONSTRUCTION MATERIALS

GOAL: Ensure that Nashua’s sand and gravel resources are accessible to extraction in an environmentally sound manner.

OBJECTIVE: CONSTRUCTION MATERIALS

Any future extraction of such resources should be done in a manner that respects the environment, abutting land uses, and the neighborhood in which the operation takes place, and provides full reclamation.

Recommendations:

a. Locate and map known sources of construction materials and assess their economic value to the City.
b. Evaluate the extent and current status of existing excavation permits under RSA 155-E, as well as reports filed pursuant to RSA 155-E:2, I(d) with respect to non-permitted excavations.
c. Consider revisions to the excavation provisions in the Nashua Revised Ordinances (NROs), if deemed necessary to improve excavation and closure operations.
d. Work with surrounding communities to develop a regional approach to managing sand and gravel resources.

COMMUNITY FACILITIES

GOAL: The City should strive to provide the best possible personnel, facilities, and services to meet the needs of all Nashua residents and businesses.

1. OBJECTIVE: FIRE/RESCUE

Provide the best possible fire and emergency response service to all parts of the City.

Recommendations:

a. Develop a new fire safety needs assessment for the City (similar in scope to the Fire Pro report). Such a report should consider the standards for and need for new facilities, manpower, etc., and also study such issues as response time goals and coordination with other City agencies and nearby communities.
b. Improve service to the NW Quadrant of the City, particularly the Route 101-A corridor, either by building a new fire station in the northwest quadrant or through alternative means such as expanded mutual aid.
c. Identify and acquire site for possible new station in S.W. Quadrant of the City.
d. Institute and follow a long-term maintenance plan for existing fire department facilities consistent with the City-wide maintenance plan.
e. Address response time in Broad Street corridor.
f. Consider moving the Arlington Street Fire Station further west to increase its effective service area and provide a modernized facility.

2. OBJECTIVE: POLICE

Provide the best possible police service to all parts of the City.

Recommendations:

a. Maintain and optimize use of the current Nashua Community Policing Neighborhood offices. Increase
Neighborhood Police Offices if and where appropriate.
b. Maintain adequate staffing levels in the Police Department.
c. Continue enhanced police service through the use of new technology that will make the Police Department more efficient.
d. Ensure that the Police Department remains adequate for the City’s needs.
e. Enhance traffic enforcement.

3. OBJECTIVE: COMMUNITY HEALTH AND SERVICES

Provide the best possible community health services for all City residents.

Recommendations:
   a. Direct the provision of health care services to needy citizens.
   b. Strive to meet the needs of clients seeking assistance.
   c. Provide adequate childcare services.
   d. Ensure that the Community Services Division has adequate facilities to meet demand for services.

4. OBJECTIVE: GENERAL GOVERNMENT/CITY HALL

Provide the best possible, efficient government service to the citizens of Nashua and the general public. Strive to provide first-rate services and facilities that maintain and enhance the public health, safety, welfare, and education of its citizens.

Recommendations:
   a. Improve and enhance the physical condition of City Hall by undertaking needed repairs, as documented in the Capital Improvements Program, and by making the building more energy-efficient. Develop a City-wide maintenance plan / schedule for all municipal buildings.
   b. Provide efficient, high quality services to all residents of the City and have a strategic plan to review these services.
   c. Improve communications and communication systems between City divisions and departments to provide the best possible service to Nashua’s citizens.
   d. Use the latest available technology, such as the Internet, in improving communications and access to information for all Nashua residents.
   e. Ensure that the City’s institutional uses meet the same land-use standards and criteria as private land uses.
   f. Utilize Geographic Information Systems to its fullest extent.
   g. Consider creating a Facility Division that would be responsible for maintenance and repairs at all municipal buildings and land.

5. OBJECTIVE: PUBLIC EDUCATION/SCHOOLS

Continually strive to improve the quality of public education for all students, so as to graduate students that are well-prepared for life and careers in the 21st century.

Recommendations:
   a. Develop and adopt a comprehensive plan to update existing educational facilities to insure provision of the most efficient and up-to-date physical plants and most modern equipment.
   b. Develop a truly comprehensive capital and operating plan that will fully address the long-range needs and goals of the school system.
   c. Consider acquiring a site for possible new school in S.W. Quadrant of the City.
d. Ensure that school sites are large enough to accommodate all necessary educational functions, as well as provide needed recreational and open space for students.
e. Ensure that the City’s educational system needs keep pace with changes in educational strategies and technologies.
f. Provide a safe and continuous network of properly maintained sidewalks for all students and promote walking and bicycling as the preferred mode of transportation.
g. Provide safe bus transportation for all qualifying students that meets schedule needs.
h. Continue to monitor the City’s growth, and revise enrollment projections on a regular basis so that any future facility needs are anticipated long before they become urgent.

6. OBJECTIVE: LIBRARY

Maintain the Nashua Public Library as one of the premier libraries of northern New England.

Recommendations:

a. Utilize the space and functional potential of the entire main library building to its fullest capacity.
b. Incorporate and make full use of new technologies in library services, including Internet access, computerized circulation and acquisition functions and additional applications as they evolve.
c. Explore development of branch libraries in the S.W. and N.W. Quadrants, and on Bridge Street in the Crown Hill area.
d. Link the public library with the public school libraries.

c. a.

7. OBJECTIVE: HOSPITALS AND MEDICAL FACILITIES

Support efforts of Nashua’s two major hospitals and other medical facilities to continue to provide superior medical services to the City’s population.

Recommendations:

a. Consider if the zoning ordinance, as it relates to medical services generally, needs to be revised to include provisions for a “Medical Services District” and related use and dimensional requirements.
b. Any hospital or medical facility expansions need to recognize and protect adjacent residential areas from unreasonable impacts.

c. a.

d. a.

8. OBJECTIVE: CULTURAL RESOURCES AND FACILITIES/ARTS AND ENTERTAINMENT

Support efforts to make the City of Nashua a regional center for social, cultural and entertainment programs.

Recommendations:

a. Foster and encourage the development of a Nashua cultural affairs organization.
b. Encourage development of appropriate venues for the arts, social and cultural programs investigating the feasibility of a cultural facility.
c. Encourage public art.
d. Foster cooperative arrangements with the institutions of higher learning to host and promote artistic and cultural programs and events.
e. Identify creative funding sources and assist in the most appropriate location for, and plan the construction of, a first-rate performing arts center, ideally in or close proximity to the downtown if a feasibility study shows that a performing arts center is viable.
9. OBJECTIVE: HIGHER EDUCATION FACILITIES

- Provide a supportive environment for both general and specialized higher educational opportunities.

Recommendations:

- a. Encourage the higher educational facilities (HEFs) to coordinate their offerings in order to reduce redundancy and fill service gaps.
- b. Support the visibility of programs at local colleges and trade schools.
- c. Support coordination between economic development organizations and institutions of higher learning.
- d. Identify and prioritize the educational facility needs of Nashua, so that the HEFs may fulfill some community facility needs and, conversely, that City facilities may fulfill some HEF needs. Explore the feasibility of sharing facilities.
- e. Require the HEFs to maintain their campus development (master) plans, which are comprised of such elements as growth rates, site plan issues, parking and safety issues.
- f. Identify HEF growth area boundaries for future land acquisition and new facilities, both within and adjacent to HEFs. Define the relationship between HEFs and surrounding areas. Revise the development regulations (zoning and site plan ordinances) accordingly.
- g. Encourage the HEFs to work with neighborhoods to resolve land use concerns via public forums, focus groups and public hearings for input.
- h. Encourage the HEFs to assess the relationship between their educational programs and present and projected local and regional job opportunities. The HEFs should strive to offer programs that will contribute to the local and regional employment base.
- i. Encourage the HEFs, the Nashua Senior High School, and the Junior High Schools to share facilities, programs, and curriculum development so as to benefit all citizens in the most efficient manner possible.
- j. Consider if the zoning ordinance needs to be revised to include provisions for a “Higher Education District” and related use and dimensional requirements.

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UTILITIES AND PUBLIC SERVICES

GOAL: Provide high quality public services, facilities, and infrastructure support for both existing and future residents and businesses in the City.

1. OBJECTIVE: CITY SEWER SYSTEM/WASTEWATER TREATMENT FACILITY

Meet the wastewater needs of Nashua’s citizens and businesses while making the most efficient use of the sewer system and wastewater treatment facility.

Recommendations:

- a. Require developments to pay their fair share of sewer line extensions and improvements.
- b. Develop a comprehensive plan for the maintenance and expansion of the sewer system and the Wastewater Treatment Facility (WWTF).
- c. Review the City’s existing septic and well regulations, with assistance from the Health Department, to see if any revisions are needed to protect landowners and the environment in those areas that rely on individual septic systems.
- d. Address combined sewer overflows (CSOs), such that no untreated wastewater enters the Nashua and Merrimack rivers.
- e. Monitor the capacity of the WTF and plan for plant expansion if the situation warrants.
f. Stay on track with the Enterprise Fund projects designed to modernize the plant and make it more efficient.
g. Develop a long-term sewer rehabilitation/replacement program to address aging and damaged sewer lines.
h. Plan all infrastructure improvements comprehensively, taking road improvements, sidewalks, non-motorized modes of transportation, street tree plantings, water lines, sewer lines, natural gas lines, electrical service and cable TV service into account when doing any road work or other infrastructure improvements.

2. OBJECTIVE: PENNICHUCK WATER WORKS/WATER DISTRIBUTION

Work closely with Pennichuck Water Works to ensure superior water quality and service that meets the long-term needs of residences, businesses, and industries in the City.

Recommendations:
- a. Provide adequate water volume and pressure throughout the area served in order to meet fire safety requirements and the needs of residences, businesses, and industries.
- b. Promote conservation of the Pennichuck watershed to protect water quality and quantity.
- c. Plan all infrastructure improvements comprehensively, taking road improvements, sidewalks, non-motorized modes of transportation, street tree plantings, water lines, sewer lines, natural gas lines, electrical service and cable TV service into account when doing any road work or other infrastructure improvements.
- d. Assure that Nashua’s long-term water needs will be met as part of Pennichuck’s long-term plans.

3. OBJECTIVE: NATURAL GAS DISTRIBUTION

Promote the use of this relatively clean burning fuel and ensure the efficient distribution of natural gas lines in the City.

Recommendations:
- a. Plan all infrastructure improvements comprehensively, taking road improvements, sidewalks, non-motorized modes of transportation, street tree plantings, water lines, sewer lines, natural gas lines, electrical service and cable TV service into account when doing any road work or other infrastructure improvements.
- b. Allow commercial or industrial uses to generate their own electricity only after considering and mitigating effects on surrounding land uses.

4. OBJECTIVE: SOLID WASTE/RECYCLING/FOUR HILLS LANDFILL

Secure Nashua’s ability to manage its solid waste in a financially and environmentally sound manner over the next 20 or more years, and establish a foundation that will ensure Nashua’s ability to use the most appropriate waste disposal solutions at all times.

Recommendations:
- a. Conserve existing and future landfill space.
- b. Provide adequate trash and recycling services to all City residents.
- c. Foster, encourage and educate citizens regarding recycling.
- d. Develop a program to encourage businesses to recycle.
- e. Maximize the control and flexibility the City has over long-term decisions and costs.
- f. Meet Federal and State regulations.
- g. Satisfy the solid waste hierarchy, as detailed in RSA 149-M.
- h. Include a cost-effective financial solution to waste disposal that is both long-term and equitable.
- i. Maximize the City’s ability to consider all viable solid waste management technologies in the future, such as waste-to-energy, municipal solid waste composting, and others.
5. OBJECTIVE: COMMUNICATIONS/TELECOMMUNICATIONS

Work with the telecommunications industry to improve the telecommunications infrastructure, and make state-of-the art, wide-band technology available to citizens, the business community, and schools. Such actions will ensure that Nashua is fully competitive with other areas of the country seeking high technology business growth.

Recommendations:

a. Provide and/or improve access to high speed, wideband telecommunications.
b. Provide and/or improve access to other communications technology as it becomes available (i.e. fiber optics, etc.)
c. Plan all infrastructure improvements comprehensively, taking road improvements, water lines, sewer lines, natural gas lines, electrical service, and cable TV service into account when doing any road work or other infrastructure improvements.
d. Form a Telecommunications Task Force to investigate solutions to Nashua’s telecommunications needs.

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ECONOMIC DEVELOPMENT

GOAL: The City shall promote a balanced and sustainable approach to economic development that is consistent with the wider goals and objectives of the Nashua 2000 Master Plan, as well as the economic viability of the City as a whole.

1. OBJECTIVE: BUSINESS/ECONOMIC DEVELOPMENT GENERALLY

Increase the number and quality of businesses in the City of Nashua and the greater Nashua area by attracting select, international and out-of-state growth businesses and promoting existing business retention.

Recommendations:

a. Add to the tax base by attracting businesses that will create high quality jobs without overburdening present services
b. Define and target segments and market these desirable businesses
c. Diversify economic development in order to minimize the effects of cyclical economic downturns.
d. Provide a supportive environment for retention and expansion of existing businesses.
e. Foster dialogue between business and schools to promote education in areas of likely economic development.
f. Improve telecommunications, transportation and other City infrastructure.
g. Support the adaptive re-use of older industrial buildings through ordinance changes.
h. Study the appropriate mix of commercial and industrial development.

2. OBJECTIVE: COMMERCIAL DEVELOPMENT

The City shall take actions to promote the health and visual quality of its commercial zones, which greatly contribute to the economic well-being of the City.
Recommendations:

a. Revise billboard and sign ordinances for better appearance, maintenance, compatibility and compliance.
b. Provide adequate shopping and service opportunities for under-serviced populations.
c. Review the commercial site landscaping provisions of the zoning ordinance and update if deemed necessary. Special emphasis should be placed on ensuring adequate buffers between non-compatible land uses.
d. Update the commercial land-use definitions in the Nashua Revised Zoning Ordinances.
e. Encourage infill development within, and work to revitalize existing commercial areas.
f. Enhance existing commercial areas with improved landscaping, aesthetics, signage, nighttime light pollution, architectural design, traffic flow and coordination with abutting land uses whenever the opportunity presents itself.
g. Ensure adequate buffers between all commercial development and abutting non-commercial land uses.
h. Conduct a comprehensive study of the City’s zoning ordinance and site plan regulations as they pertain to commercial development, and revise as needed.
i. Minimize the traffic congestion and conflicts that often accompany commercial development by careful attention to traffic issues and cross access easements in the site plan review process.

3. OBJECTIVE: RETENTION OF EXISTING ECONOMIC BASE

The City shall not only work to attract high quality new industries and commercial growth, but retain and enhance its existing economic base.

Recommendations:

a. Invest in the City’s long-term economic resource base.
b. Stop the loss of jobs in the community by strengthening the existing business base and diversifying the economy of the region.
c. Develop new cooperative relationships in the region to direct, promote and implement economic development activities.

4. OBJECTIVE: ECOLOGICALLY SUSTAINABLE ECONOMIC DEVELOPMENT

Nashua’s economic growth should be based on industries and businesses that incorporate the principals of sustainability into their operations, and which respect and enhance Nashua’s environment and quality of life.

Recommendations:

a. Guide commercial and industrial development to the existing built areas of the City and minimize development in outlying, undeveloped areas.
b. Remediate and redevelop Nashua’s brownfield sites in order to bring about positive environmental and economic change.
c. Encourage the development community and financial institutions to support infill development generally and re-development of brownfield sites in particular.
d. Encourage and support businesses that reduce employee and product-related vehicle trips.
e. Encourage and support businesses that are working to reduce dependence on fossil fuels and other non-renewable resources.

5. OBJECTIVE: NASHUA AIRPORT/BOIRE FIELD

The City shall recognize the benefits that a prosperous municipal airport provides the community by
working to ensure its continued success and long-term viability and facilitating actions that enable adequate services to be provided to its aeronautical operators.

Recommendations:
   a. Undertake recommended capital improvement projects that provide for more efficient, modernized and safe airport operations.
   b. Acquire identified properties in the runway clear-zones.
   c. Approve adequate visual and noise separation between the Airport and nearby residential uses.
   d. Balance Airport needs with quality of life of nearby residents.

6. OBJECTIVE: DOWNTOWN

The City shall continue and increase its revitalization efforts to ensure that downtown Nashua is a safe, clean, attractive, and accessible urban center that serves as the community’s premier social, cultural, recreational, educational and economic marketplace.

Recommendations:
   a. Develop a concept design and implementation plan for downtown.
   b. Develop a program that encourages property owners and citizens to take pride in and preserve Downtown’s Historic Resources.
   c. Enhance access parking to the east side of Main Street.
   d. Make the downtown into a livable environment, a destination for recreation, entertainment, and educational and cultural enrichment.
   e. Support efforts that will aid the downtown riverfront in reaching its maximum potential.
   f. Promote the downtown as an attractive living place for those wanting a high quality urban lifestyle.
   g. Promote focused public-private partnerships whose goal is to improve the overall quality of downtown Nashua.
   h. Recognize the value of maintaining a mix of employment opportunities and enterprises in the downtown, with an emphasis on the professional fields.
   i. Pursue locating an institution of higher learning into downtown.
   j. Expand the vitality of the downtown by expanding retail activity east and west of Main Street, including the Millyard area.
   k. Develop and nourish a partnership with building owners to create a vision/plan and take necessary steps for making the plan a reality.
   l. Pursue a location for a performing arts center for downtown.
   m. Encourage public and private arts.

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INDUSTRIAL DISTRICTS AND INDUSTRIAL POLICY

GOAL: Ensure that the industrially zoned areas contribute toward the economic and fiscal well being of the City through full utilization and proper planning, and by providing for traditional industrial, office, research and development, and other similar types of uses.

OBJECTIVE: INDUSTRIAL DISTRICTS AND INDUSTRIAL POLICY

The City and local economic development agencies will strive to attract a diversified mix of well-paying, leading-edge, clean industries to Nashua, and ensure that this industry is environmentally sound and does
Recommendations:

a. Attract a diversified industrial base resistant to economic fluctuations.
b. Promote Nashua as a center of entrepreneurial activity and create a set of services that provides the environment needed for successful enterprise development and small business expansion.
c. Create jobs in Nashua by attracting firms that will provide new, high-paying employment opportunities.
d. Identify underutilized industrial sites.
e. Encourage and support infill industrial development next to existing industrial sites.
f. Encourage and support the reuse and rehabilitation of existing, underutilized industrial buildings.
g. Encourage Exit 2 access to the industrially zoned area north of Spit Brook Road.
h. Consider the appropriateness of industrial revitalization plans for the following industrially zoned areas: N.E. Boulevard, Simon Street, the Millyard, the Airport and Park Industrial areas near the Airport, and the former Johns Manville and Ingersoll-Rand properties.
i. Prevent the erosion of the City’s industrial base from commercial uses.
j. Determine what commercial uses are appropriate in certain industrial buildings and areas.
k. Ensure that adequate infrastructure exists to serve existing and proposed industrial areas.
l. Consider a streamlined and creative review and approval process for industrial uses.
m. Write clear definitions of all potential industrial types/uses and apply them to all of the industrial zones.
n. Harmonize industrial expansion or revitalization with surrounding land uses.
o. Enhance the visual quality of new and existing industrial areas through improved building design, landscaping, signage and control of nighttime light pollution.
p. Consider what additional lands, if any, would best be suited to industrial use if the existing stock were to fill up.
q. Ensure that adequate transportation networks exist to serve existing and proposed industrial areas.
r. Provide a reasonable amount of space for heavy industrial uses, provided they are environmentally sound and do not detract from neighboring land uses.
s. Provide adequate zoning for industrial park-type development.
t. Promote clean, technologically advanced industries.
u. Discourage or prohibit noxious industries that create the potential for serious health or safety hazards.
v. Encourage attractive, landscaped, and sensitively sited industrial development that is compatible with surrounding land uses.
w. Create new jobs in Nashua by attracting firms that will provide new high paying employment opportunities. Target leading growth industries in high-tech, health services, and other sectors projected to be leaders in the 21st century.

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TRANSPORTATION

GOAL: A transportation system that comprehensively serves the transportation needs of our residents and businesses and enhances quality of life.

1. OBJECTIVE: PERSONAL AND COMMERCIAL MOTORIZED TRANSPORTATION

Develop a comprehensive management plan for the City’s roadways that provides smooth transitions and linkages to the State highway system.

Recommendations:

a. Develop a functional road classification system for the City, and classify all roads.
b. Maintain all roads and bridges consistent with their functional road classification and traffic volumes.
c. Specify physical and safety standards for all classes of roads in the City.
d. Consider transportation linkages with the region and the state when undertaking any transportation planning.
e. Ensure that new subdivision roads tie into the existing road network in a way that eases the flow of traffic and encourages the optimal distribution of trips throughout the City.
f. Identify hazardous road segments or intersections, rank them in priority for improvement, and work to remedy them as quickly as possible.
g. Complete an intersection study and rank intersections with regard to future traffic signal needs.

2. OBJECTIVE: TRAFFIC

Minimize the adverse impact of traffic to the maximum extent practicable.

Recommendations:

a. Separate through traffic from local traffic to the maximum extent possible.
b. Develop and implement a City-wide traffic plan that discourages through traffic in residential areas by using traffic calming measures. Seek to implement techniques such as traffic calming measures as a preferred alternative to more traffic signals and stop signs.
c. Implement traffic calming measures for local and collector streets, instead of adding more traffic signals, giving priority to areas with high elderly and school age children populations.
d. Where appropriate, designate roads as rural and scenic.
e. Ensure adequate on and off site traffic circulation associated with commercial development.
f. Ensure that major road repair / construction projects do not overly disrupt traffic patterns and the mobility needs of citizens and commuters.
g. Minimize curb cuts on collector and arterial roads.
h. Continue efforts for the completion of planned highway projects including the Broad Street Parkway and the Circumferential Highway.
i. Continue with the planned re-alignment and improvements at the intersection of Sargents Ave., Manchester St., and Courtland St. to remove existing stopping sight deficiencies.
j. Implement access management techniques to preserve capacity and increase safety in key highway corridors including Route 101A, Daniel Webster Highway, Route 111, Route 111A, and Route 130.

3. OBJECTIVE: MASS TRANSIT, RAIL, AIR AND OTHER TRANSPORTATION ALTERNATIVES

Ensure that adequate public transportation opportunities remain available, and expand them if possible.

Recommendations:

a. Explore the desirability and economic feasibility of expanding the City’s public transit system.
b. Encourage greater use of public transportation, by making it as convenient as possible.
c. Explore the feasibility of developing transfer stations at public parking areas.
d. Promote and actively plan for passenger rail service to Boston as a way to ease traffic congestion on the F.E. Everett Turnpike.
e. Explore potential for a regional public transit system for all segments of the population.
f. Improve pedestrian amenities and pathways to enhance transit ridership, and improve bicycle routes to encourage alternatives to motorized vehicles.
g. Decisions made concerning the re-structuring of the fixed route bus service should incorporate residential densities, employment densities, travel demands (trip attractions and productions between traffic analysis zones), automobile ownership, and strategies to increase market share as criteria used in the analysis.
h. Make the bus system more convenient by instituting half-hour headways on fixed routes.
i. Investigate new sources to fund transit improvements and operations such as utilizing amendments to RSA 261:153, which allows the city to collect a fee of up to $5.00 for each auto registration to fund a capital reserve fund for transportation improvements.

j. Pursue operational funding for transit through private sources including large employers and retailers who have the potential to benefit greatly from transit services. This could be achieved through the establishment of a Transportation Management Association (TMA).

k. Encourage increasing residential and employment densities as in-fill in established neighborhoods to increase transit ridership, particularly in downtown areas with access to the forthcoming Broad Street Parkway.

4. OBJECTIVE: NON-MOTORIZED AND PEDESTRIAN TRANSPORTATION

Contribute to the quality of life by promoting alternatives to motorized transportation.

Recommendations:

a. Ensure that every neighborhood in the City has access to schools, community centers, parks and open space areas via sidewalks or other trails.

b. Ensure that trails and sidewalks are developed in a logical manner, allowing for priority trails and sidewalks to be developed ahead of non-priority trails.

c. Develop bike lanes and/or sidewalks along roads according to the Nashua Trails Plan and the sidewalk priority list.

d. Set aside capital improvements funds for the development, management and maintenance of trails (including snow removal)

e. Provide a mix of non-motorized, multi-use trails, as well as dedicated, single-use trails.

f. Encourage pedestrian-oriented, mixed-use neighborhoods as new subdivisions and developments are proposed.

g. Incorporate bicycle lanes and/or sidewalks into plans when roads are being resurfaced, reconstructed or as new roads are developed.

h. Develop trails that avert pedestrian / bicyclist and automobile conflicts. Sidewalks should be developed that get people off the roads; bike lanes should be created that allow bikers safe passage; and crosswalks should be placed on busy, dangerous intersections and roads.

i. Promote the use of bicycles as a form of transportation through the development of bike lanes, trails and storage facilities.

j. Ensure proper site planning in order to accommodate uses with a high level of pedestrian activity.

k. Identify and correct problematic areas for bicycle access.

l. The City should utilize funding earmarked for improvements to the NH 101A corridor for sidewalks and bicycle paths where they do not currently exist. The NRPC will conduct a study to identify needed improvements to pedestrian and bicycle access along NH 101A.

m. Develop a comprehensive plan to meet the overall significant need for sidewalks as cited in the City of Nashua Pedestrian Facilities Study of June 1997.

n. Adopt standard designs for sidewalks to be included in subdivision regulations and in the site plan review process.

o. Promote transit use through signage, attractive bus shelters and other marketing devices.

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HOUSING

GOAL: Ensure that the supply of housing meets the needs of Nashua’s residents in a well-
planned manner.

1. **OBJECTIVE: HOUSING IN GENERAL**

   Maintain a wide variety of housing types, residential densities, and open space, meeting the needs of the full spectrum of our citizens.

   **Recommendations:**
   a. Continue to prevent and address housing discrimination.
   b. Devote available resources to revitalizing unstable, deteriorated neighborhoods.
   c. Protect the character of existing neighborhoods through zoning regulation and enforcement.
   d. Ensure safe, sanitary housing through proactive housing code enforcement.
   e. Explore opportunities to provide shopping, medical facilities, recreation, and public transportation near high density housing.
   f. Explore a mix of land uses that promote pedestrian accessibility between housing and essential services (i.e. shopping, etc.).
   g. Recognize and address the housing needs for an aging population.
   h. Recognize and address the parking needs of inner city residents.

2. **OBJECTIVE: HOMEOWNERSHIP**

   Strive to meet the needs of all citizens seeking owner-occupied housing.

   **Recommendations:**
   a. Use existing federal and State housing programs to assist moderate-income renters with the purchase of affordable units.
   b. Consider an amendment to the Nashua Revised Ordinances (NROs) to allow Incentive Zoning in targeted areas (i.e. the City would allow residential density in excess of that permitted in the existing or underlying zoning, and require that a certain percentage of additional units be affordable).
   c. Promote continued and expanded homeownership in inner city neighborhoods in support of neighborhood revitalization efforts.

3. **OBJECTIVE: RENTAL HOUSING**

   Work to ensure that the stock of rental housing is of sufficient quantity and quality to meet the needs of those desiring this housing option.

   **Recommendations:**
   a. Increase the supply of rental housing in the City to meet the needs of all income groups.
   b. Give priority to the rehabilitation of vacant and or substandard inner city residential buildings that can be used as rental housing.
   c. Improve housing code enforcement for rental housing.
   d. Review the City’s Zoning Ordinance to assess opportunities for providing alternative housing designs.

4. **OBJECTIVE: ASSISTED HOUSING**

   Provide housing assistance to those in need.

   **Recommendations:**
a. Promote the use of existing State and federal housing programs.
b. Target public financial assistance to those who will permanently maintain affordability of housing units.
c. Allow home-sharing to make effective use of large homes.
d. Support the development of transitional and or assisted housing facilities and associated programs for those in need to avoid displacement and homelessness.

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LAND USE

The Land Use section of the Master Plan reiterates the land use related recommendations from the other sections of the plan that are reflected on the future land use map.

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Preface

This Demographic Element is intended as a summary of statistics and basic information about the City of Nashua in the areas of population growth and population characteristics, school enrollment trends and projections, housing growth and real estate trends, and employment statistics. It should provide the reader with a concise yet thorough “snapshot” of the City of Nashua’s most important vital statistics.

Of necessity, much of the analysis in this element is based on 1990 Census data, which is now nearly a decade old. It is recommended that this Element be revised once 2000 Census data becomes available. Until then, the following statistics and information should provide a context from which the remainder of this Nashua 2000 Master Plan can be reviewed.

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I. POPULATION GROWTH AND CHARACTERISTICS

A. Past Population Growth, focus on 1960 – 2000

1. Historic Population Trends

   Historically, Nashua was one of several mill cities, including Manchester, Lowell, and Lawrence, located along the Merrimack River that evolved into regional centers, containing most of their regions’ population and employment. In the period from the late 1800’s – early 1900’s, Nashua’s population grew steadily, increasing from 13,397 in 1880 to 31,463 in 1930, a 135% increase. From 1930 - 1960, Nashua’s population growth was fairly flat, with an increase of only 7,604 persons or 25% over three decades. This encompasses the period of the Great Depression, the era of decline of the textile
and shoe industries, the World War II years, and the early post-war period. Figure III -1 below and Table III – 1 illustrate Nashua’s growth compared to that of the Region and the State from 1880 to 2000. Nashua’s population explosion, fueled mostly by in-migration attracted by Nashua’s growing employment opportunities, available land, and relative tax advantage (compared to neighboring states), began in earnest in the 1960’s.

**FIGURE III - 1**

*Nashua and NRPC Population 1880-2000*

![Graph showing population growth from 1880 to 2000 for Nashua, NRPC, and State of NH.]

*Source: US Census Bureau from NRPC’s *Profile of the City of Nashua*

**TABLE III-1**

*POPULATION GROWTH, 1880-2000*

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<th>NASHUA</th>
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<tbody>
<tr>
<td>1880</td>
<td>13,397</td>
<td>-</td>
<td>-</td>
<td>25,103</td>
<td>347,000</td>
</tr>
<tr>
<td>1890</td>
<td>19,311</td>
<td>5,914</td>
<td>44.14%</td>
<td>30,988</td>
<td>376,500</td>
</tr>
<tr>
<td>1900</td>
<td>23,898</td>
<td>4,587</td>
<td>23.75%</td>
<td>36,731</td>
<td>411,600</td>
</tr>
<tr>
<td>1910</td>
<td>26,005</td>
<td>2,107</td>
<td>8.82%</td>
<td>38,467</td>
<td>430,600</td>
</tr>
<tr>
<td>1920</td>
<td>28,379</td>
<td>2,374</td>
<td>9.13%</td>
<td>40,796</td>
<td>443,100</td>
</tr>
<tr>
<td>1930</td>
<td>31,463</td>
<td>3,084</td>
<td>10.87%</td>
<td>45,347</td>
<td>465,300</td>
</tr>
<tr>
<td>1940</td>
<td>32,927</td>
<td>1,464</td>
<td>4.6%</td>
<td>48,214</td>
<td>491,500</td>
</tr>
<tr>
<td>1950</td>
<td>34,669</td>
<td>1,742</td>
<td>5.3%</td>
<td>52,900</td>
<td>533,200</td>
</tr>
<tr>
<td>1960</td>
<td>39,069</td>
<td>4,427</td>
<td>12.8%</td>
<td>63,893</td>
<td>606,900</td>
</tr>
<tr>
<td>1970</td>
<td>55,820</td>
<td>16,751</td>
<td>42.9%</td>
<td>100,862</td>
<td>737,579</td>
</tr>
<tr>
<td>1980</td>
<td>67,865</td>
<td>12,045</td>
<td>21.6%</td>
<td>138,089</td>
<td>920,475</td>
</tr>
<tr>
<td>1990</td>
<td>79,662</td>
<td>11,797</td>
<td>17.4%</td>
<td>171,478</td>
<td>1,109,252</td>
</tr>
<tr>
<td>2000</td>
<td>86,605</td>
<td>6,943</td>
<td>8.7%</td>
<td>195,788</td>
<td>1,235,786</td>
</tr>
</tbody>
</table>

*Growth Rate, 1880-2000*  
546% 680% 256%

*Source: US Census Bureau from NRPC’s *Profile of the City of Nashua*

As seen above, Nashua’s population increased by 7,604 persons, or 25%, over the three decades from 1930 – 1960. By contrast, during the single decade of the 1960s, Nashua’s population increased from 39,096 to 55,820, an increase of 43%. This rapid population increase can be attributed to several factors. The construction of the F.E. Everett Turnpike greatly improved the City’s accessibility to the greater Boston metropolitan area. This improved accessibility enabled employers to consider locations further removed from Boston and the Route 128 corridor. New Hampshire’s relative tax advantages and low cost of living, for both businesses and individuals, also greatly contributed to the area’s attractiveness. As the City’s economy rebounded and grew, more and more new industries decided to locate in Nashua, and the employees followed. The diversity of available housing types afforded by the City’s many residential zoning districts, and the greater availability of rental units in Nashua as compared to the surrounding towns, also served to attract in-migrants to the City.

Table III - 2 illustrates Nashua’s population growth as compared to that of the region and the state during the period 1960 – 2000.

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NASHUA</td>
<td>86,605</td>
<td>79,662</td>
<td>67,865</td>
<td>55,820</td>
<td>39,069</td>
<td>0.75%</td>
<td>4.29%</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>195,788</td>
<td>171,478</td>
<td>138,089</td>
<td>100,862</td>
<td>63,893</td>
<td>1.23%</td>
<td>5.79%</td>
</tr>
<tr>
<td>Hillsborough County</td>
<td>380,841</td>
<td>336,073</td>
<td>276,608</td>
<td>223,941</td>
<td>178,161</td>
<td>1.25%</td>
<td>2.57%</td>
</tr>
<tr>
<td>State of NH</td>
<td>1,235,786</td>
<td>1,109,252</td>
<td>920,475</td>
<td>737,579</td>
<td>606,900</td>
<td>1.24%</td>
<td>2.15%</td>
</tr>
</tbody>
</table>

Source: US Census Bureau

During the 1970’s, the City’s population increased from 55,820 to 67,865, an increase of 12,045 or 22%. Though not as great as the increase of the 1960’s, this rate of growth was still substantial, and the City’s status as a high-tech and defense-related employment center continued to grow. New suburban neighborhoods began to expand beyond the confines of the core City to the areas west and south of the Turnpike, and Nashua began to change into the predominantly suburban community that it is today. This substantial growth continued throughout the 1980’s, and Nashua’s population reached 79,662 by 1990. Nashua’s population growth of 11,797 during the 1980’s was nearly identical to that of the 1970’s, but as the City’s population base had increased substantially by then, the percentage increase was slightly less, at 17.4%.

The City’s 1985 Master Plan projected the growth rates of the 1990’s to be a continuation of the rates seen in the 1970’s and early 1980’s. The recession of the late 1980’s and early 1990’s saw those assumptions come crashing down, and the rate of population and housing growth in the 1990’s has been substantially less than that of the boom decades of the 1960’s – 1980’s. Nashua is still growing, albeit at a slower rate. Nashua’s population increased by about 6,943 people, or 8.7%, in the period from 1990 –2000. Nashua’s average annual growth rate over this ten-year period was .75%, substantially less than that of the last three previous decades. As Nashua approaches build-out, it can be expected that the average annual growth rate will decrease as the amount of remaining developable land decreases.

Table III – 3 illustrates that from 1990 – 1998, Nashua had a net gain of 1,149 housing units, 943 of which were single-family homes. This equates to an increase of 3.44% over the 1990 number of housing units, and an average annual growth rate of .43%, or 151 units per year, 118 of which were single-family homes. This rate of housing growth is much less than that of the 1980’s. In the 1980’s, Nashua’s annual average rate of housing growth was 2.38%, or an average of 794 units per year! While the housing market is rebounding from the recession of the late 1980’s – early 1990’s, growth rates are not expected to ever approach those seen in the 1980’s. This is due in part to the growing scarcity of developable land, and also to the more modest economic growth characteristic of the 1990’s and expected for the near-term future.
TABLE III-3

DWELLING UNITS IN NASHUA SINCE 1990 CENSUS

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S.F. Detached</td>
<td>63</td>
<td>98</td>
<td>83</td>
<td>87</td>
<td>110</td>
<td>93</td>
<td>122</td>
<td>104</td>
<td>185</td>
<td>945</td>
<td>118</td>
</tr>
<tr>
<td>S.F. Attached</td>
<td>6</td>
<td>14</td>
<td>0</td>
<td>17</td>
<td>53</td>
<td>8</td>
<td>41</td>
<td>20</td>
<td>4</td>
<td>163</td>
<td>20</td>
</tr>
<tr>
<td>Duplex, Multi family,</td>
<td>15</td>
<td>-4</td>
<td>-10</td>
<td>-14</td>
<td>-11</td>
<td>24</td>
<td>38</td>
<td>4</td>
<td>60</td>
<td>102</td>
<td>13</td>
</tr>
<tr>
<td>Mobile Home and Conversions</td>
<td>(minus demolitions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEAR END TOTALS:</td>
<td>84</td>
<td>108</td>
<td>73</td>
<td>90</td>
<td>152</td>
<td>125</td>
<td>201</td>
<td>128</td>
<td>249</td>
<td>1,210</td>
<td>151</td>
</tr>
</tbody>
</table>

ESTIMATED # OF DWELLING UNITS NASHUA, Jan. 1999: 34,593

Source: City of Nashua, Community Development Division

Background: The 1990 Census accounts for dwelling units to the end of March 1990. This table tracks new and net units from this period onward. Numbers reflect building permits issued for each type of unit. The numbers are for net dwelling units by type and include subtractions for demolitions.

Now that we have seen how much growth has occurred in Nashua in the recent past, the next question is where has this growth occurred? Recent population growth within Nashua has been unevenly distributed. Table III-4 depicts the populations of the City’s census tracts in 1980, 1990 and 2000, as well as the growth rate of tracts individually and their relative contribution to the City’s overall rate of growth. Unfortunately, because the tract boundaries were significantly revised for the 1980 census, tract data is not directly comparable to earlier versions of the US Census. Most of the population growth from the mid-1970’s into the 1980’s, expressed both as growth rates and as a percentage of the City’s overall growth, occurred in areas of the City that had previously experienced little development. The fastest growing area of Nashua in that period was the City’s northwest quadrant, particularly along the Route 101-A corridor (Tract 102), which more than doubled in population between 1980 and 1990, and continued to increase by 19% between 1990 and 2000.

Census Tracts 114 and 112, in the City’s southwest quadrant, also grew rapidly, with respective increases of 79% and 61% during the 1980’s. Census Tract 112 continued its growth by another 27% during the 1990’s, while growth slowed in Tract 114. A substantial increase was also reported in Tracts 108 (the Millyard, “Tree Street,” and Ledge Street areas), which grew by 25% during the 1990’s.

During the same period, three of Nashua’s census tracts also experienced population decreases. A steady decrease in population from 1980 to 2000 is evident in Tract 110, which includes the remainder of Crown Hill, the South Main Street neighborhoods and other older residential neighborhoods. Tract 113 experienced a very slight decrease between 1990 and 2000 after an increase in population in the 1980’s. The most notable population decrease between 1990-2000 occurred in Tract 107 (area along Main Street); this area also has the least populated census tract in the City. This trend may be attributable to the strong economy; new businesses may have displaced housing in this tract, forcing the population to drop in the immediate downtown area. However, Tract 108 (immediately west of downtown) has a population increase of 25%; this may be in large part due to the renovation of Clocktower Place, a 410-unit apartment complex.

TABLE III - 4

NASHUA POPULATION CHANGE BY CENSUS TRACT, 1980-2000

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. Migration and Natural Increase

Factors contributing to changes in total population size can be generally divided into two categories: migration and natural increase. Total or net migration is the difference between the number of people moving into an area, or immigration, and the number of people leaving an area, or outmigration. Natural increase is the total change in population size caused by resident births and deaths.

Between 1980 and 1990, natural increase accounted for the majority of the growth of Nashua’s population (58.5%) and slightly less than a majority of the NRPC’s regional population growth (46.5%). (From here onward, “regional population, etc.” refers to the population or other characteristic of the communities making up the NRPC region.*) These figures represent a significant change from the pattern seen during the 1970s. Between 1970 and 1980, 44.2% of Nashua’s population growth was due to natural increase, while 55.8% was due to net migration. During the same period, only 15.8% of the Nashua region’s population growth was due to natural increase, the rest (84.2%) was due to net migration. These figures show that even during in the 1970’s, Nashua’s share of regional population growth was decreasing relative to the other communities in the region. As Nashua approaches build-out, this trend can be expected to intensify. Table III - 5 below illustrates the components of population increase for the period of 1970 to 1990.

<table>
<thead>
<tr>
<th>TABLE III - 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NASHUA POPULATION GROWTH, 1980-90</strong></td>
</tr>
<tr>
<td>MIGRATION AND NATURAL INCREASE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NASHUA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Increase</td>
<td>55,820</td>
<td>67,865</td>
<td>12,045</td>
<td>79,662</td>
<td>11,797</td>
</tr>
<tr>
<td>% of change</td>
<td>44.2%</td>
<td>58.5%</td>
<td>55.8%</td>
<td>41.5%</td>
<td></td>
</tr>
<tr>
<td>Total Migration</td>
<td>5,319</td>
<td>6,726</td>
<td>1,407</td>
<td>4,890</td>
<td></td>
</tr>
<tr>
<td>% of change</td>
<td>55.8%</td>
<td>15.8%</td>
<td>46.5%</td>
<td>53.5%</td>
<td></td>
</tr>
<tr>
<td>NRPC Region*</td>
<td>63,893</td>
<td>138,089</td>
<td>74,196</td>
<td>171,478</td>
<td>33,389</td>
</tr>
<tr>
<td>Natural Increase</td>
<td>11,719</td>
<td>17,871</td>
<td>6,152</td>
<td>14,492</td>
<td></td>
</tr>
<tr>
<td>% of change</td>
<td>15.8%</td>
<td>46.5%</td>
<td>84.2%</td>
<td>53.5%</td>
<td></td>
</tr>
<tr>
<td>Total Migration</td>
<td>62,477</td>
<td>115,217</td>
<td>52,740</td>
<td>156,986</td>
<td></td>
</tr>
<tr>
<td>% of change</td>
<td>84.2%</td>
<td>53.5%</td>
<td>84.2%</td>
<td>53.5%</td>
<td></td>
</tr>
</tbody>
</table>

Sources: NRPC figures based on US Census data and NH Vital Statistics.

*The NRPC region consists of the communities of Amherst, Brookline, Hollis, Hudson, Litchfield, Lyndeborough, Merrimack, Milford, Mont Vernon, Nashua, Pelham, and Wilton.
While in-migration into Nashua seems to have increased somewhat from 1990 – 1997 (based on building permit data, new business starts, and other indirect indicators), it is not expected to overtake natural increase as the primary means of population increase for the period leading up to build-out. This leads to an examination of regional population distribution.

4. Regional Population Distribution

As the following data indicates, during the past five decades the population of Nashua has comprised a steadily decreasing proportion of the regional population. This is partly due to the faster growth of surrounding communities, and to the relatively lower proportion of vacant developable land remaining in the City. This trend is expected to continue as the City approaches build-out. Future increases beyond nominal build-out will depend on increases in population density and redevelopment of previously developed areas.

### TABLE III - 6

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NASHUA</td>
<td>65.5</td>
<td>61.2</td>
<td>55.3</td>
<td>49.2</td>
<td>46.5</td>
<td>44.2</td>
</tr>
<tr>
<td>Amherst</td>
<td>2.8</td>
<td>3.2</td>
<td>4.6</td>
<td>6.0</td>
<td>5.3</td>
<td>5.5</td>
</tr>
<tr>
<td>Brookline</td>
<td>1.3</td>
<td>1.2</td>
<td>1.2</td>
<td>1.3</td>
<td>1.4</td>
<td>2.14</td>
</tr>
<tr>
<td>Hollis</td>
<td>2.3</td>
<td>2.7</td>
<td>2.6</td>
<td>3.4</td>
<td>3.3</td>
<td>3.58</td>
</tr>
<tr>
<td>Hudson</td>
<td>7.9</td>
<td>9.2</td>
<td>10.6</td>
<td>10.2</td>
<td>11.4</td>
<td>11.7</td>
</tr>
<tr>
<td>Litchfield</td>
<td>0.8</td>
<td>1.1</td>
<td>1.4</td>
<td>3.0</td>
<td>3.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>1.0</td>
<td>0.9</td>
<td>0.8</td>
<td>0.8</td>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Merrimack</td>
<td>3.6</td>
<td>4.7</td>
<td>8.5</td>
<td>11.2</td>
<td>12.9</td>
<td>12.8</td>
</tr>
<tr>
<td>Milford</td>
<td>7.9</td>
<td>7.6</td>
<td>6.6</td>
<td>6.3</td>
<td>6.9</td>
<td>7.0</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>0.8</td>
<td>0.9</td>
<td>0.9</td>
<td>1.1</td>
<td>1.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Pelham</td>
<td>2.5</td>
<td>4.1</td>
<td>5.4</td>
<td>5.9</td>
<td>5.5</td>
<td>5.6</td>
</tr>
<tr>
<td>Wilton</td>
<td>3.7</td>
<td>3.2</td>
<td>2.3</td>
<td>1.9</td>
<td>1.8</td>
<td>1.9</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>


Click to return to the Top of the Demographic Element

B. Population Projections to 2020

1. Office of State Planning Population Projections

The New Hampshire Office of State Planning (OSP) periodically issues population projections for every municipality in the State. The most recent population projections were issued in 1997. The OSP municipal population projections are highly dependent on the limits set on their county projections. The county projections are roughly based on long-term trends that occurred in New Hampshire in the period from 1960 – 1990. The local projections are based on a community’s historical share of its respective county’s growth. The principal assumption with this projection method is that trends of a community’s population change, relative to the parent county, will remain about the same in the future. The basic trends in shares of county population change were established using 1970, 1980, and 1990 population totals. The municipal share of total county population was calculated for each of these years. The projections also use OSP’s most recent post-1990 census population estimates. These are based in part on the number of residential building permits issued by each community per year.

The OSP 1997 projections are seen in Table III - 7 below. As can be seen, Nashua’s population in 2020 is
projected at 91,145, an increase of 6,478 persons over the 2000 estimate of 83,840. This represents an average annual growth rate of 0.38% over the period. We have seen that the average annual growth rate for the 1990’s has been .75%, higher than but close to the projected rate of 0.38%. A slight overall decrease in the rate of growth is just what should be expected as a municipality approaches build-out, and OSP projections are consistent with that trend.

**TABLE III-7**

<table>
<thead>
<tr>
<th>POPULATION PROJECTIONS, 2000-2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AVERAGE ANNUAL GROWTH RATE</strong></td>
</tr>
<tr>
<td><strong>POPULATION PROJECTIONS</strong></td>
</tr>
<tr>
<td>NASHUA</td>
</tr>
<tr>
<td>NRPC Region</td>
</tr>
<tr>
<td>Hillsborough County</td>
</tr>
<tr>
<td>State of NH</td>
</tr>
</tbody>
</table>


It is interesting to note how Nashua’s projected rate of growth compares to that of the NRPC region, the County, and the State. The NRPC region is expected to grow at a much faster rate than Nashua, and somewhat faster than the County and the State of New Hampshire overall. This is a continuation of a trend seen over the last two decades where Nashua’s share of regional population growth has decreased. The communities immediately surrounding Nashua, especially Merrimack, Hudson, and Litchfield, have all experienced rapid growth in the recent past, and these communities have a greater proportion of developable land compared to Nashua. These communities, and Hillsborough County in general, are in commuting range of employment centers (including Nashua) in the greater Boston metropolitan area, and as such are expected to grow faster than the State average.

2. **Future Population Estimates based on City Data and Build-Out Studies**

In 1998, the Nashua Regional Planning Commission (NRPC) asked the City of Nashua Planning Department to provide an estimate of potential future residential, commercial, and industrial growth for each of the City’s traffic analysis zones (TAZ’s), per their regional traffic model. In essence, the TAZ exercise constitutes a simplified version of a build-out analysis. A build-out analysis seeks to estimate the amount and location of future development when all of the available developable land in an area or a community has been developed. Depending on the community, the build-out point could be reached in the near future (for our purposes within 20 or so years), or in the long-range future (beyond 20 years, or well into the 21st century). The results of the build-out study performed for the Southwest Quadrant Master Plan Update were incorporated into the TAZ estimates. In the spring of 1999, the City of Nashua Planning Department revisited the original TAZ estimates in order to provide NRPC with refined numbers to be used in traffic projections. The discussion below is based on these revised numbers.

The 1999 TAZ update resulted in the following growth estimates for the period 1999 through build-out. It must be emphasized that the following are estimates of development potential, which, if anything, tend to somewhat overestimate the amount of development that will actually occur. The premise of any build-out type of exercise is that all developable land will be developed at maximum allowable densities. As we will see when examining natural resource constraints, when the most desirable land for development is used up, development is forced on to marginal lands, which may not support the amount of development indicated in an estimate such as this one. Nonetheless, build-out and similar exercises are useful planning tools. They can indicate what the community should be planning for in regards to infrastructure and other improvements and programs. Due to uncertainties of rezoning and the degree of infill development, several of the estimates given below are provided as a range.

The additional growth estimates are:
• Single Family Homes: 1,000 – 1,400
• Multi-Family Dwellings: 75 - 150
• New Retail / Commercial: 640,000 sq.ft.
• New Industrial, Research and Development, High-end Office: 3,200,000 sq.ft.
• One new High School and one new Elementary School (S.W. Quadrant)

Based on the above estimate, new residential growth will increase about 4% over the 1998 estimate of 34,593 dwelling units in the City. The City is thus very close to residential build-out at present, and if the recent average growth rate of 120 additional units per year holds true for the near future, residential build-out could be reached in 12 years, or by 2012. Assuming an average of 3.04 persons per unit (single-family home multiplier), new growth alone will result in an additional 4,256 residents. As Nashua’s 1997 population was estimated at 83,840, new growth alone will bring the City’s population to about 88,000, before the amount for natural increase is factored in. The OSP estimates the City’s population in 2020 to be 91,145, which is very much in line with the estimates provided through the TAZ exercise.

C. Age Profile of Nashua’s Population

1. Age Distribution Based on Census Data

The age composition of Nashua’s population generally reflects those of the NRPC region and of the State as a whole. As compared to the region and the state, the City had a slightly lower concentration of individuals under the age of twenty, and a slightly higher concentration of young adults ages 20-34 (Table III – 8, below) in 2000. The proportion of persons ages 65 and over in Nashua was somewhat higher than that of the region but slightly less than the state. Nashua's greater proportion of older residents as compared to the region is a reflection of the substantial housing opportunities that exist in the City for elderly residents.

Table III – 9 and Figure III – 2, which use equal age period cohorts, compare the age distribution of the populations of Nashua and the state between 1970 and 2000. Despite the high level of urbanization found in Nashua as compared to the state, the City’s population distribution has closely matched that of the state over time. In 1970, the age distribution of both populations were indicative of a stable society with normal rates of growth, relatively high fertility rates, and little relative impact from in- or out-migration. The patterns shown in 1990 and 2000, however, indicate a significant shift in the population composition toward the young adult group (ages 20-39), indicating a decrease in fertility rates and an increase in the impact of net in-migration relative to that of natural increase. The median age of the general population has significantly increased since 1970, along with an increase of the percentage of persons over the age of 65. This trend indicates an aging population that is a direct result of the “Baby Boom” period.

<table>
<thead>
<tr>
<th>Age</th>
<th>NASHUA</th>
<th>NRPC Region</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>5,644</td>
<td>(6.5%)</td>
<td>13,510 (6.9%)</td>
</tr>
<tr>
<td>5-9</td>
<td>6,307</td>
<td>(7.3%)</td>
<td>15,638 (8.0%)</td>
</tr>
<tr>
<td>10-14</td>
<td>6,147</td>
<td>(7.1%)</td>
<td>15,800 (8.0%)</td>
</tr>
<tr>
<td>15-19</td>
<td>5,281</td>
<td>(6.1%)</td>
<td>12,789 (6.5%)</td>
</tr>
<tr>
<td>20-24</td>
<td>5,001</td>
<td>(5.8%)</td>
<td>8,888 (4.5%)</td>
</tr>
<tr>
<td>25-34</td>
<td>13,733</td>
<td>(15.9%)</td>
<td>27,628 (14.1%)</td>
</tr>
<tr>
<td>35-44</td>
<td>15,242</td>
<td>(17.6%)</td>
<td>37,954 (19.4%)</td>
</tr>
<tr>
<td>45-54</td>
<td>11,813</td>
<td>(13.6%)</td>
<td>28,609 (14.6%)</td>
</tr>
<tr>
<td>55-59</td>
<td>4,185</td>
<td>(4.8%)</td>
<td>9,885 (5.0%)</td>
</tr>
<tr>
<td>60-64</td>
<td>3,210</td>
<td>(3.7%)</td>
<td>6,981 (3.6%)</td>
</tr>
<tr>
<td>65-74</td>
<td>5,296</td>
<td>(6.1%)</td>
<td>10,025 (5.1%)</td>
</tr>
<tr>
<td>75-84</td>
<td>3,511</td>
<td>(4.1%)</td>
<td>6,091 (3.1%)</td>
</tr>
<tr>
<td>84+</td>
<td>1,235</td>
<td>(1.4%)</td>
<td>2,020 (1.0%)</td>
</tr>
</tbody>
</table>
### TABLE III - 9

PERCENTAGE POPULATION DISTRIBUTION BY AGE, 1970-2000

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NASHUA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5</td>
<td>13.0%</td>
<td>8.3%</td>
<td>9.4%</td>
<td>NA</td>
</tr>
<tr>
<td>6-17</td>
<td>24.1%</td>
<td>20.2%</td>
<td>14.7%</td>
<td>NA</td>
</tr>
<tr>
<td>18-64</td>
<td>55.2%</td>
<td>62.0%</td>
<td>65.8%</td>
<td>63.8%</td>
</tr>
<tr>
<td>65+</td>
<td>8.6%</td>
<td>9.5%</td>
<td>10.1%</td>
<td>11.6%</td>
</tr>
<tr>
<td><strong>Median Age</strong></td>
<td>26.5</td>
<td>29.6</td>
<td>31.9</td>
<td>35.8</td>
</tr>
<tr>
<td>NRPC Region</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5</td>
<td>13.5%</td>
<td>8.9%</td>
<td>9.7%</td>
<td>NA</td>
</tr>
<tr>
<td>6-17</td>
<td>25.2%</td>
<td>22.8%</td>
<td>16.8%</td>
<td>NA</td>
</tr>
<tr>
<td>18-64</td>
<td>53.7%</td>
<td>60.6%</td>
<td>65.3%</td>
<td>63.5%</td>
</tr>
<tr>
<td>65+</td>
<td>7.6%</td>
<td>7.7%</td>
<td>8.2%</td>
<td>9.3%</td>
</tr>
<tr>
<td><strong>Median Age</strong></td>
<td>28.0</td>
<td>30.1</td>
<td>32.8</td>
<td>37.1</td>
</tr>
<tr>
<td>State</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5</td>
<td>10.8%</td>
<td>8.1%</td>
<td>9.1%</td>
<td>NA</td>
</tr>
<tr>
<td>6-17</td>
<td>23.6%</td>
<td>19.9%</td>
<td>16.0%</td>
<td>NA</td>
</tr>
<tr>
<td>18-64</td>
<td>54.9%</td>
<td>60.8%</td>
<td>63.6%</td>
<td>63%</td>
</tr>
<tr>
<td>65+</td>
<td>10.6%</td>
<td>11.2%</td>
<td>11.3%</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Median Age</strong></td>
<td>28.0</td>
<td>30.1</td>
<td>32.8</td>
<td>37.1</td>
</tr>
</tbody>
</table>


### FIGURE III - 2

POPULATION DISTRIBUTION BY AGE, 1970 AND 1990

**Nashua, 1970**

**New Hampshire, 1970**

**Nashua, 1990**

**New Hampshire, 1990**

2. Age Profile Projections to 2010

One technique used to project the age profile of a population is called cohort survival. This technique uses survival rates for designated age groups (called "cohorts"), and carries each cohort forward in time to determine the future population profile. Cohort Projection models also factor in such values such as the fertility rate for women of child bearing age, and in net migration rates for each cohort, which may be either be positive or negative. The most difficult variable to estimate is net migration, since this is influenced by many factors, such as economic conditions, the price of housing, and the supply of housing, etc. The US Census Bureau and other agencies involved with demographics have found that survival rates and fertility rates remain fairly stable in industrialized countries such as the United States, and change very slowly over time. Of the three main variables, survival rates, fertility rates, and net migration, the “wild card” is net migration.

Planning Staff obtained a cohort-survival model from the Center for Urban Policy Research (CUPR). The CUPR model includes national factors for survival and fertility rates, and can be run either with or without an adjustment for net migration. As this part of the demographic exercise is concerned with the possible future age profile of Nashua residents, and because migration rates are inherently difficult to predict, Planning Staff ran the model without an adjustment for net migration. Interestingly, the model’s projected future population for Nashua in 2010, which is the furthest into the future the model can project (20 years from 1990), is 7,454 greater than the OSP projected population of 87,997. Whether Nashua will ever reach a population of 95,433 remains to be seen, and will likely depend on the extent of higher density development and redevelopment in and close to the inner city. The OSP bases their population projections in part upon building permit trends, and they project a slower rate of growth over the next few decades than that seen in the period from 1960 – 1990. The CUPR model, as a “canned program,” is not as flexible; however, it can still be useful in determining how a population will age over time, and it is for this purpose that the model was run. Planning Staff believes the OSP projections to be the more reliable, but the CUPR model should still be useful in examining how the age structure of Nashua’s population could change over time.

Table III – 10 provides a summary of the cohort survival projections. The first part gives the male and female cohort figures for census year 1990. The second part shows the results of running the program. For each, the number and percentage of males and females in each age cohort is given, as well as totals at the bottom of the table. Changes in the three most important age groups, from a planning and public policy perspective, will be discussed here. Those age groups are:

- The 0 – 4 cohort, which captures newborns and pre-school age children.
- The 5 – 9, 10 – 14, and 15 – 19 cohorts, which captures school age children.
- The 65 – 74, and 75+ cohorts, which captures senior citizens and the elderly.

First, the number of young children in the 0 – 4 cohort is projected to decrease by 1,214 from 1990 to 2010, going from 6,425 in 1990 to 5,211 in 2010, a drop of 18.9%. The male / female split is nearly equal for this age cohort.

Second, the three cohorts that comprise the school-aged children population, 5 – 9, 10 – 14, and 15 – 19, are projected to increase by 1,757 over the twenty-year period, from 14,220 in 1990 to 15,977 in 2010, an increase of 12.35%. It is interesting to note that the model predicts an increase in school age children over the twenty-year period, but a decrease in births / very young children. This could be explained by a “baby boom echo” effect, with children of the baby boomers having children of their own in the 1990’s – early 2000’s, but with fewer births in the years after 2000. These “baby boom echo” children would then become the school-aged children of the first decade of the 21st century.

### TABLE III-10

| COHORT SURVIVAL PROJECTIONS |
|---|---|---|
|  | 1990 | 2010 |

Source: US Census, 1990, 1970, from NRPC’s Profile of the City of Nashua

2. Age Profile Projections to 2010

One technique used to project the age profile of a population is called cohort survival. This technique uses survival rates for designated age groups (called “cohorts”), and carries each cohort forward in time to determine the future population profile. Cohort Projection models also factor in such values such as the fertility rate for women of child bearing age, and in net migration rates for each cohort, which may be either be positive or negative. The most difficult variable to estimate is net migration, since this is influenced by many factors, such as economic conditions, the price of housing, and the supply of housing, etc. The US Census Bureau and other agencies involved with demographics have found that survival rates and fertility rates remain fairly stable in industrialized countries such as the United States, and change very slowly over time. Of the three main variables, survival rates, fertility rates, and net migration, the “wild card” is net migration.

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- The 5 – 9, 10 – 14, and 15 – 19 cohorts, which captures school age children.
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### TABLE III-10

| COHORT SURVIVAL PROJECTIONS |
|---|---|---|
|  | 1990 | 2010 |

Source: US Census, 1990, 1970, from NRPC’s Profile of the City of Nashua
<table>
<thead>
<tr>
<th>AGE INTERVAL</th>
<th>FEMALES</th>
<th>%</th>
<th>TOTAL</th>
<th>MALES</th>
<th>%</th>
<th>FEMALES</th>
<th>%</th>
<th>TOTAL</th>
<th>MALES</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 4</td>
<td>3,126</td>
<td>3.95%</td>
<td>3,299</td>
<td>4.17%</td>
<td>2,524</td>
<td>2.64%</td>
<td>2,687</td>
<td>2.82%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 - 9</td>
<td>2,644</td>
<td>3.34%</td>
<td>2,729</td>
<td>3.45%</td>
<td>2,175</td>
<td>2.28%</td>
<td>2,200</td>
<td>2.30%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 - 14</td>
<td>2,243</td>
<td>2.84%</td>
<td>2,334</td>
<td>2.95%</td>
<td>3,273</td>
<td>3.43%</td>
<td>3,548</td>
<td>3.72%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 - 19</td>
<td>1,884</td>
<td>2.38%</td>
<td>2,386</td>
<td>3.02%</td>
<td>3,111</td>
<td>2.19%</td>
<td>2,670</td>
<td>2.30%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 - 24</td>
<td>3,143</td>
<td>3.97%</td>
<td>3,071</td>
<td>3.88%</td>
<td>3,434</td>
<td>3.60%</td>
<td>3,448</td>
<td>3.61%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 - 29</td>
<td>4,349</td>
<td>5.50%</td>
<td>4,651</td>
<td>5.88%</td>
<td>2,758</td>
<td>2.89%</td>
<td>3,735</td>
<td>3.91%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 - 34</td>
<td>4,053</td>
<td>5.12%</td>
<td>4,282</td>
<td>5.41%</td>
<td>3,112</td>
<td>3.26%</td>
<td>3,538</td>
<td>3.71%</td>
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<td></td>
</tr>
<tr>
<td>35 - 39</td>
<td>3,302</td>
<td>4.17%</td>
<td>3,387</td>
<td>4.28%</td>
<td>2,779</td>
<td>2.91%</td>
<td>3,836</td>
<td>4.02%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 - 44</td>
<td>2,943</td>
<td>3.72%</td>
<td>2,858</td>
<td>3.61%</td>
<td>3,844</td>
<td>4.03%</td>
<td>4,376</td>
<td>4.58%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45 - 49</td>
<td>2,245</td>
<td>2.84%</td>
<td>2,276</td>
<td>2.88%</td>
<td>4,815</td>
<td>5.04%</td>
<td>5,115</td>
<td>5.36%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 - 54</td>
<td>1,732</td>
<td>2.19%</td>
<td>1,785</td>
<td>2.26%</td>
<td>3,743</td>
<td>3.92%</td>
<td>4,053</td>
<td>4.25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55 - 59</td>
<td>1,699</td>
<td>2.15%</td>
<td>1,593</td>
<td>2.01%</td>
<td>2,978</td>
<td>3.12%</td>
<td>2,902</td>
<td>3.04%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60 - 64</td>
<td>1,626</td>
<td>2.06%</td>
<td>1,374</td>
<td>1.74%</td>
<td>2,870</td>
<td>3.01%</td>
<td>2,494</td>
<td>2.61%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65 - 74</td>
<td>2,718</td>
<td>3.44%</td>
<td>2,011</td>
<td>2.54%</td>
<td>3,075</td>
<td>3.22%</td>
<td>2,457</td>
<td>2.57%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75 +</td>
<td>2,313</td>
<td>2.92%</td>
<td>1,042</td>
<td>1.32%</td>
<td>3,353</td>
<td>3.51%</td>
<td>1,548</td>
<td>1.62%</td>
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<tr>
<td><strong>TOTALS</strong></td>
<td>40,020</td>
<td></td>
<td>39,078</td>
<td></td>
<td>46,844</td>
<td></td>
<td>48,607</td>
<td></td>
<td><strong>TOTAL POP.</strong></td>
<td>79,098</td>
</tr>
</tbody>
</table>

Source: 1990 US Census, Projections City of Nashua, Community Development Division

Projections based on natural increase only and do not factor in net migration.

The last age segment that we are concerned with is senior citizens, those in the 65 – 74 and 75 and over age cohorts. For this group, males and females will be described separately, since females tend to outnumber males once these ages are reached. For males, this cohort grouping is projected to increase by 952 over the twenty-year period, going from 3,053 in 1990 to 4,005 in 2010, an increase of 31%. The proportion of males in these age cohorts as compared to the total population, however, is expected to change little, from 3.86% in 1990 to 4.19% in 2010. For females, this cohort grouping is projected to increase by 1,217 over the twenty-year period, going from 5,031 in 1990 to 6,248 in 2010, an increase of 24%. Interestingly, while the increase in male survivorship from 1990 to 2010 is greater than for females, there will still be more females (6,248) than males (4,005) as projected for 2010. As it was for males, it is projected that there will be little change in the proportion of females in these age cohorts as compared to the total population, 6.36% in 1990 to 6.73% in 2010.

3. Implications of Nashua’s Population Growth and Age Profile Over the Planning Period

If the CUPR cohort-survival projections have any degree of reliability, it can be expected that Nashua should plan for a modest increase in school-age children during the early years of the first decade of the new century. This increase in school-age children (SAC) can be attributed to the “baby boom echo” phenomenon. Whether this increase in SAC will require capacity expansions, and / or portable classrooms at some of the City’s schools remains to be seen. Certainly, the model’s predicted increase in SAC should serve as notice for the School Department to be on the lookout for an increase in births over the next few years that would impact school enrollments in the decade of 2000 - 2010. The model also predicts a decline in births during that decade, however, so the increase in SAC is likely to be short-lived. If this should prove to be an accurate prediction (which should be determinable several years prior), then the School Department should take that into account when undertaking their capital facilities planning.

One of the models predictions is that Nashua’s overall population will be aging over the coming two decades. The median age, which was 31.9 in 1990, will be between the ages of 35 – 39 for males, and 40 – 44 for females in the next decade. The model cannot predict an exact future median age, but the cohort in which the median is to occur can be inferred.

Perhaps the most important finding of the model is the projected increase in the number of senior citizens. The population of males over 65 is projected to increase 31% over 1990 levels, reaching 4,005 by the year 2010. The population of females in the same age group is projected to increase by 24% over 1990 levels, reaching 6,248 in 2010. While the share of elderly as compared to the total population is projected to increase only slightly, the increase in
absolute numbers does raise some important planning and policy issues. One is that there will likely be an increased demand for elderly housing, both of the independent living and managed care types of facilities. Another implication is the increased demand for social services and medical care, which will impact area hospitals, social service agencies and the City’s Community Services Division. It is perhaps not too early for these institutions to plan for an increase in the elderly population.

Click to return to the Top of the Demographic Element

D. Miscellaneous Population Characteristics

In addition to general population trends, the Census also reports on miscellaneous population characteristics. These other characteristics include such factors as the racial composition of the population, age distribution, educational attainment, marital status and statistics on families and households, etc. This data can be useful in gaining a better understanding of one’s municipality and how it compares to other geographic areas. In this Demographic Element, three main areas will be examined: population distribution by sex, race, and ethnic origin; educational attainment; and marital status, families, and households.

1. Population distribution by Sex, Race, and Ethnic Origin

According to the 2000 Census, females comprise approximately 51% of the population in Nashua and in the region as a whole. Non-whites comprised nearly 11% of the City’s population, as compared to 5.5% for the region and 3% for the State as a whole. Persons of Hispanic origin comprised 6.2% of the City’s population, as compared with less than 3.3% for the region and 1% for the State. Although Nashua’s total population accounted for 7% of the States total population in 2000, the City is home to 22.3% of the State’s non-white population and 26.3% of the State’s Hispanic population.

TABLE III - 11
POPULATION DISTRIBUTION BY SEX, RACE, AND HISPANIC ORIGIN, 2000

<table>
<thead>
<tr>
<th></th>
<th>Population 2000</th>
<th>Male</th>
<th>Female</th>
<th>White</th>
<th>Black</th>
<th>Amer. Indian/ Eskimo</th>
<th>Asian</th>
<th>Other</th>
<th>Hispanic Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASHUA</td>
<td>86,605</td>
<td>42,775</td>
<td>43,830</td>
<td>78,393</td>
<td>2,131</td>
<td>527</td>
<td>3,695</td>
<td>3,240</td>
<td>5,388</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>195,788</td>
<td>97,090</td>
<td>98,698</td>
<td>185,068</td>
<td>3,055</td>
<td>1,014</td>
<td>5,230</td>
<td>3,681</td>
<td>6,618</td>
</tr>
<tr>
<td>Hillsboro. County</td>
<td>380,841</td>
<td>187,827</td>
<td>193,014</td>
<td>361,770</td>
<td>6,234</td>
<td>2,216</td>
<td>8,791</td>
<td>6,880</td>
<td>12,166</td>
</tr>
<tr>
<td>State of NH</td>
<td>1,235,786</td>
<td>607,687</td>
<td>628,099</td>
<td>1,198,927</td>
<td>12,218</td>
<td>7,885</td>
<td>19,219</td>
<td>11,672</td>
<td>20,489</td>
</tr>
</tbody>
</table>


The Table III-12 shows a comparison between 1990 and 2000 for the distribution of race and ethnicity of the general population within the City of Nashua. There has been a 124% increase in the number of Hispanic/Latinos since 1990. All racial categories increased in population within the past 10 years, however the largest increases were in the Asian and Other population. The “other” category consists of multi-racial, mixed, interracial, or a Hispanic/Latino group (i.e. Mexican, Puerto Rican or Cuban). For the first time, the 2000 Census includes a category entitled “two or more races,” which refers to any combination of two or more of the race categories listed in the table below.

TABLE III - 12
CITY OF NASHUA
CHANGE IN DISTRIBUTION OF SEX, RACE, AND HISPANIC ORIGIN, 2000

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>77,291</td>
<td>89.25%</td>
<td>75,800</td>
<td>95.15%</td>
<td>1,491</td>
<td>2%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>1,740</td>
<td>2.01%</td>
<td>1,293</td>
<td>1.62%</td>
<td>447</td>
<td>35%</td>
</tr>
<tr>
<td>American Indian/Alaskan</td>
<td>275</td>
<td>0.32%</td>
<td>177</td>
<td>0.22%</td>
<td>98</td>
<td>55%</td>
</tr>
<tr>
<td>Asian</td>
<td>3,363</td>
<td>3.88%</td>
<td>1,524</td>
<td>1.91%</td>
<td>1,839</td>
<td>121%</td>
</tr>
<tr>
<td>Hawaiian/Pacific Islander</td>
<td>29</td>
<td>0.03%</td>
<td>12</td>
<td>0.02%</td>
<td>17</td>
<td>142%</td>
</tr>
<tr>
<td>Other</td>
<td>2,642</td>
<td>3.05%</td>
<td>856</td>
<td>1.07%</td>
<td>1,786</td>
<td>209%</td>
</tr>
<tr>
<td>Two Races</td>
<td>1,265</td>
<td>1.46%</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>TOTAL</td>
<td>86,605</td>
<td>100%</td>
<td>79,662</td>
<td>100%</td>
<td>6,943</td>
<td>8.72%</td>
</tr>
<tr>
<td>Hispanic or Latino (any race)</td>
<td>5,388</td>
<td>6.22%</td>
<td>2,407</td>
<td>3.02%</td>
<td>2,981</td>
<td>124%</td>
</tr>
</tbody>
</table>


2. Educational Attainment

Table III - 13 shows the educational attainment of persons aged twenty-five years and older for Nashua, several of New Hampshire’s larger towns and cities, the State, and the United States. Nashua remains in a similar relative position to other cities in New Hampshire, and the State as a whole. Nashua is slightly ahead of the State average for the percentage of those with Bachelor Degrees, 20% as compared to 16.4%, and for those with advanced degrees, 8.8% as compared to 8%. The proportion of high school graduates, however, is somewhat lower in Nashua than for the State, 26.8% as compared to 30%. Overall, however, this data from the 1990 Census shows that Nashua’s population, on the whole, is well educated. This table, as well as others in this Master Plan for which 1990 Census data is the only data available, should be updated once the results of the 2000 Census are released. That information will show how the educational attainment of Nashua’s population changed during the 1990’s.

TABLE III - 13

EDUCATIONAL ATTAINMENT, POPULATION 25 YEARS AND OLDER, 1990

<table>
<thead>
<tr>
<th></th>
<th>No High School Degree</th>
<th>High School Graduate</th>
<th>Some College, No Degree</th>
<th>Assoc. Degree</th>
<th>Bachelor Degree</th>
<th>Graduate or Prof. Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASHUA</td>
<td>17.3%</td>
<td>26.8%</td>
<td>19.2%</td>
<td>7.9%</td>
<td>20.0%</td>
<td>8.8%</td>
</tr>
<tr>
<td>Concord</td>
<td>15.8%</td>
<td>30.4%</td>
<td>18.6%</td>
<td>7.4%</td>
<td>17.2%</td>
<td>11.0%</td>
</tr>
<tr>
<td>Dover</td>
<td>16.9%</td>
<td>30.5%</td>
<td>20.2%</td>
<td>8.0%</td>
<td>17.6%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Manchester</td>
<td>25.0%</td>
<td>30.3%</td>
<td>17.6%</td>
<td>7.4%</td>
<td>13.5%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Portsmouth</td>
<td>11.2%</td>
<td>31.0%</td>
<td>22.7%</td>
<td>8.5%</td>
<td>18.6%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Rochester</td>
<td>25.0%</td>
<td>37.9%</td>
<td>16.5%</td>
<td>6.5%</td>
<td>9.8%</td>
<td>4.3%</td>
</tr>
<tr>
<td>State of NH</td>
<td>17.9%</td>
<td>31.7%</td>
<td>18.0%</td>
<td>8.1%</td>
<td>16.4%</td>
<td>8.0%</td>
</tr>
<tr>
<td>USA</td>
<td>24.8%</td>
<td>30.0%</td>
<td>18.7%</td>
<td>6.2%</td>
<td>13.1%</td>
<td>7.2%</td>
</tr>
</tbody>
</table>


3. Marital Status, Families, and Households

Patterns in the marital status of people living in Nashua reflect that general social changes seen in the nation over the last few decades. As compared to 1970, Nashua’s population in 1990 tended to have a higher proportion of single people, meaning those who were never married, and a higher proportion of people who were widowed, divorced, or separated. In 1990, married people constituted a shrinking majority of Nashua’s population. These patterns were generally reflected in the populations of the region, Hillsborough County, and the State as a whole, although the number of single women in the State showed a relative decline, and the number of married women remained virtually unchanged. Similarly, the number of single women in Hillsborough County remained almost unchanged between 1970 and 1990. Table III - 14 also shows that for all populations there were roughly twice as many females as males in the widowed, divorced or separated categories in both 1970 and 1990. Interestingly, the number of men who never married (single) was generally higher in absolute and relative terms for all populations in both 1970 and 1990.

TABLE III - 14
**MARITAL STATUS, 1990**

<table>
<thead>
<tr>
<th></th>
<th>MALES</th>
<th></th>
<th></th>
<th>FEMALES</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Age 15+</td>
<td>Single*</td>
<td>Married†</td>
<td>W/D/S‡</td>
<td>Total</td>
<td>Age 15+</td>
<td>Single*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NASHUA 1990</td>
<td>30,716</td>
<td>9,556</td>
<td>17,686</td>
<td>3,474</td>
<td></td>
<td>32,571</td>
<td>7,809</td>
<td>17,628</td>
</tr>
<tr>
<td>235</td>
<td>256</td>
<td>(31.1%)</td>
<td>(57.6%)</td>
<td>(11.3%)</td>
<td></td>
<td>364</td>
<td>(24.0%)</td>
<td>(54.1%)</td>
</tr>
<tr>
<td>1970</td>
<td>18,295</td>
<td>4,573</td>
<td>12,544</td>
<td>1,178</td>
<td></td>
<td>20,811</td>
<td>4,883</td>
<td>12,608</td>
</tr>
<tr>
<td>235</td>
<td>256</td>
<td>(25.0%)</td>
<td>(68.6%)</td>
<td>(6.4%)</td>
<td></td>
<td>364</td>
<td>(23.5%)</td>
<td>(60.5%)</td>
</tr>
<tr>
<td>NRPC Region 1990</td>
<td>65,198</td>
<td>18,530</td>
<td>40,312</td>
<td>6,356</td>
<td></td>
<td>67,946</td>
<td>15,037</td>
<td>40,246</td>
</tr>
<tr>
<td>235</td>
<td>256</td>
<td>(28.4%)</td>
<td>(61.8%)</td>
<td>(9.7%)</td>
<td></td>
<td>363</td>
<td>(21.8%)</td>
<td>(64.0%)</td>
</tr>
<tr>
<td>1970</td>
<td>33,201</td>
<td>8,069</td>
<td>23,198</td>
<td>1,934</td>
<td></td>
<td>36,375</td>
<td>7,949</td>
<td>23,291</td>
</tr>
<tr>
<td>235</td>
<td>256</td>
<td>(24.3%)</td>
<td>(69.9%)</td>
<td>(5.8%)</td>
<td></td>
<td>363</td>
<td>(21.8%)</td>
<td>(64.0%)</td>
</tr>
<tr>
<td>Hillsborough County 1990</td>
<td>127,111</td>
<td>37,322</td>
<td>76,062</td>
<td>13,727</td>
<td></td>
<td>135,788</td>
<td>31,726</td>
<td>75,869</td>
</tr>
<tr>
<td>235</td>
<td>256</td>
<td>(29.4%)</td>
<td>(59.8%)</td>
<td>(10.8%)</td>
<td></td>
<td>363</td>
<td>(23.4%)</td>
<td>(55.9%)</td>
</tr>
<tr>
<td>1970</td>
<td>75,982</td>
<td>20,715</td>
<td>50,188</td>
<td>5,079</td>
<td></td>
<td>84,467</td>
<td>19,874</td>
<td>50,384</td>
</tr>
<tr>
<td>235</td>
<td>256</td>
<td>(27.3%)</td>
<td>(66.1%)</td>
<td>(6.7%)</td>
<td></td>
<td>363</td>
<td>(23.5%)</td>
<td>(59.6%)</td>
</tr>
<tr>
<td>State 1990</td>
<td>422,521</td>
<td>120,673</td>
<td>254,446</td>
<td>47,402</td>
<td></td>
<td>449,800</td>
<td>101,572</td>
<td>253,517</td>
</tr>
<tr>
<td>235</td>
<td>256</td>
<td>(28.6%)</td>
<td>(60.2%)</td>
<td>(11.2%)</td>
<td></td>
<td>363</td>
<td>(22.6%)</td>
<td>(56.4%)</td>
</tr>
<tr>
<td>1970</td>
<td>342,095</td>
<td>99,791</td>
<td>210,081</td>
<td>32,223</td>
<td></td>
<td>371,243</td>
<td>87,667</td>
<td>209,742</td>
</tr>
<tr>
<td>235</td>
<td>256</td>
<td>(30.8%)</td>
<td>(64.8%)</td>
<td>(9.9%)</td>
<td></td>
<td>363</td>
<td>(23.6%)</td>
<td>(56.5%)</td>
</tr>
</tbody>
</table>

* Never Married  
† Married, except separated  
‡ Widowed, divorced, or separated

From NRPC’s Profile of the City of Nashua.

Data for families and households (Table III - 15) mirror the information on marital status, and show that more than half of all households are headed by married couples in Nashua, the region, Hillsborough County and the State. Approximately 28% of all 2000 households in Nashua were one-person households, a higher proportion than for the other regions. This reflects a greater concentration of young adults and a greater availability of rental housing in Nashua. This is further supported by the slightly higher percentage of non-family households in Nashua in 2000 than in the other regions shown in the table.

**TABLE III - 15**

**FAMILIES AND HOUSEHOLDS, 2000**

<table>
<thead>
<tr>
<th></th>
<th>Total Households</th>
<th>One person Households</th>
<th>Married Couple Households</th>
<th>2 More Person Households</th>
<th>Families</th>
<th>Male Head Households</th>
<th>Female Head Households</th>
<th>Non-Family Households</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NASHUA 1990</td>
<td>34,614</td>
<td>9,797</td>
<td>17,079</td>
<td>1,398</td>
<td>3,606</td>
<td>2,734</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(28.3%)</td>
<td>(49.3%)</td>
<td>(4.0%)</td>
<td>(10.4%)</td>
<td>(7.9%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NRPC Region 1990</td>
<td>72,680</td>
<td>15,829</td>
<td>42,912</td>
<td>2,690</td>
<td>6,554</td>
<td>4,705</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(21.8%)</td>
<td>(59.0%)</td>
<td>(3.7%)</td>
<td>(9.0%)</td>
<td>(6.5%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hillsborough County 1990</td>
<td>144,455</td>
<td>35,166</td>
<td>79,432</td>
<td>5,696</td>
<td>13,727</td>
<td>10,434</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(24.3%)</td>
<td>(55.0%)</td>
<td>(3.9%)</td>
<td>(9.5%)</td>
<td>(7.2%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State of NH 1990</td>
<td>474,606</td>
<td>116,014</td>
<td>262,438</td>
<td>18,261</td>
<td>42,952</td>
<td>34,941</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(24.4%)</td>
<td>(55.3%)</td>
<td>(3.9%)</td>
<td>(9.0%)</td>
<td>(7.4%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


NOTE: A household includes all the persons who occupy a housing unit. One person in the household is designated as the householder. A family consists of a householder and one or more other persons living in the same household who are related to the householder by birth.
II. SCHOOL ENROLLMENT TRENDS AND PROJECTIONS

A. School Enrollment Trends, 1980 – 2000

One of the most significant municipal functions, and perhaps the greatest municipal expenditure, is education. Like most communities in the United States, Nashua operates a public school system. Nashua offers a comprehensive public education system, covering the grades Kindergarten through High School. A comprehensive examination of school facilities and issues facing the school district will be given in the Community Facilities Element. This section will focus on enrollment trends and projections as part of the demographic analysis.

The current grade configuration for the three major education levels is; Elementary: grades K – 6; Middle School or Junior High School: grades 7 – 9; and Senior High School, grades 10 – 12. This configuration differs from that found in many other municipalities, where High School includes grades 9 – 12, and Junior High School includes grades 6 – 8. As we will see in the Community Facilities Element, there is now a plan to redistribute grades at the various levels in the near future.

As seen in Table III – 16, in 1980 there were 5,476 students at the elementary level; 2,749 at the Junior High level; and 2,658 students at the High School level, for a total of 10,883 students in the public school system. By 2000, the total number of students in the system increased by 19.8%, for a current total of 13,581 students. Elementary enrollments jumped in 1988 when public Kindergarten was instituted.

B. School Enrollment Projections

In May of 1997, the Nashua School District hired the New England School Development Council (NESDEC) to conduct a study and prepare a report on projected school enrollments and available instructional space with respect to current and future educational needs. NESDEC used a cohort survival method to project school enrollments to the 2005-2006 school year. The results of those projections are seen in the lower rows of Table III – 16. At the elementary level, NESDEC is projecting that enrollments will gradually decline after the peak year of 2000-2001, due to falling birthrates and the slower rate of in-migration of the 1990’s, as compared to previous periods. On birth rates, NESDEC reports:

“The number of births to residents peaked during the five years between 1987 and 1991, with an average of 1,441 annual births to residents during that period. The five-year average of 1,254 between 1992 and 1996 indicates a decrease of 15% in births. There has been a steady decline in the number of births during this period, with 1,342 births in 1992 and an estimated 1,188 births in 1996. As a result of the decline in the number of births, elementary enrollments are projected to decline as these children move through the school system. It is assumed that births will be in the 1,210 – 1,220 range over the next five-year period.”

NESDEC made a number of other assumptions before projecting school enrollments. These are important to note, as a change in any one assumption could dramatically change the resultant projections. These assumptions are:

• Births to Nashua residents will level off and be within the 1,210 – 1,220 range for the next 5 years.
• About 35% of children will attend non-public kindergarten or be placed in day care.
• There will continue to be a small net out-migration (between .5 – 2%) as a class moves from grades 2 – 8.
• Housing growth will be similar to that of the last five years, or 120 – 160 new homes per year.
That about 3% of ninth grade students will attend a non-public high school.

At the middle school or Junior High level, NESDEC projects that enrollments will increase, peak, and then drop off during the ten year period. As seen in the table, the peak year for middle school enrollment is projected to be 2001-2002, with 3,202 students. At the High School level, NESDEC is projecting that enrollments will continue to increase, peaking around the year 2005 – 2006. Interestingly, the total number of students at all grade levels is seen to peak in the (as of this writing) 2000-2001 school year.

Thus, a test of the NESDEC assumptions and projections should be able to be made in the very near future. It should be noted that these projections are based on a continuation of the current grade configuration at the various grade levels. If, as NESDEC recommends, grade 9 is moved into the High School level and grade 6 is moved into the Junior High level, the projections for those levels will need to be revised accordingly. Such internal shifting of students will not, however, affect the total number of students in the system.

The implications of these enrollment projections, NESDEC’s recommendations, and the education system options facing the City will be further explored in the education section of the Community Facilities Element.

### TABLE III-16
NASHUA SCHOOL ENROLLMENTS 1980-2000
PROJECTIONS TO 2006

<table>
<thead>
<tr>
<th>SCHOOL YEAR</th>
<th>ELEMENTARY*</th>
<th>MIDDLE OR JUNIOR HIGH*</th>
<th>HIGH SCHOOL*</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980 - 81</td>
<td>5,476</td>
<td>2,749</td>
<td>2,658</td>
<td>10,883</td>
</tr>
<tr>
<td>1981 - 82</td>
<td>5,296</td>
<td>2,664</td>
<td>2,744</td>
<td>10,704</td>
</tr>
<tr>
<td>1982 - 83</td>
<td>5,142</td>
<td>2,620</td>
<td>2,654</td>
<td>10,316</td>
</tr>
<tr>
<td>1983 - 84</td>
<td>5,075</td>
<td>2,750</td>
<td>2,635</td>
<td>10,460</td>
</tr>
<tr>
<td>1984 - 85</td>
<td>5,003</td>
<td>2,795</td>
<td>2,618</td>
<td>10,416</td>
</tr>
<tr>
<td>1985 - 86</td>
<td>5,039</td>
<td>2,736</td>
<td>2,770</td>
<td>10,545</td>
</tr>
<tr>
<td>1986 - 87</td>
<td>5,125</td>
<td>2,570</td>
<td>2,785</td>
<td>10,480</td>
</tr>
<tr>
<td>1987 - 88</td>
<td>5,379</td>
<td>2,450</td>
<td>2,714</td>
<td>10,543</td>
</tr>
<tr>
<td>1988 - 89</td>
<td>6,388</td>
<td>2,457</td>
<td>2,579</td>
<td>11,424</td>
</tr>
<tr>
<td>1989 - 90</td>
<td>6,596</td>
<td>2,416</td>
<td>2,447</td>
<td>11,459</td>
</tr>
<tr>
<td>1990 - 91</td>
<td>6,802</td>
<td>2,362</td>
<td>2,358</td>
<td>11,522</td>
</tr>
<tr>
<td>1991 - 92</td>
<td>7,054</td>
<td>2,402</td>
<td>2,353</td>
<td>11,809</td>
</tr>
<tr>
<td>1992 - 93</td>
<td>7,287</td>
<td>2,338</td>
<td>2,365</td>
<td>11,990</td>
</tr>
<tr>
<td>1993 - 94</td>
<td>7,466</td>
<td>2,424</td>
<td>2,283</td>
<td>12,173</td>
</tr>
<tr>
<td>1994 - 95</td>
<td>7,608</td>
<td>2,531</td>
<td>2,259</td>
<td>12,398</td>
</tr>
<tr>
<td>1995 - 96</td>
<td>7,718</td>
<td>2,699</td>
<td>2,215</td>
<td>12,632</td>
</tr>
<tr>
<td>1996 - 97</td>
<td>7,809</td>
<td>2,755</td>
<td>2,379</td>
<td>12,943</td>
</tr>
<tr>
<td>1997 - 98</td>
<td>7,831</td>
<td>2,832</td>
<td>2,432</td>
<td>13,095</td>
</tr>
<tr>
<td>1998 - 99</td>
<td>7,875*</td>
<td>2,927</td>
<td>2,543</td>
<td>13,345</td>
</tr>
<tr>
<td>1999 - 2000</td>
<td>7,706</td>
<td>3,086</td>
<td>2,729</td>
<td>13,521</td>
</tr>
<tr>
<td>2000 - 2001</td>
<td>7,583</td>
<td>3,115</td>
<td>2,883</td>
<td>13,581</td>
</tr>
<tr>
<td>2001 - 2002</td>
<td>7,413</td>
<td>3,202</td>
<td>2,937</td>
<td>13,552</td>
</tr>
<tr>
<td>2002 - 2003</td>
<td>7,307</td>
<td>3,134</td>
<td>3,003</td>
<td>13,444</td>
</tr>
<tr>
<td>2003 - 2004</td>
<td>6,974</td>
<td>3,100</td>
<td>2,928</td>
<td>13,002</td>
</tr>
<tr>
<td>2004 - 2005</td>
<td>7,135</td>
<td>3,135</td>
<td>3,040</td>
<td>13,310</td>
</tr>
<tr>
<td>2005 - 2006</td>
<td>6,962</td>
<td>3,116</td>
<td>3,117</td>
<td>13,195</td>
</tr>
</tbody>
</table>

Source: Nashua School Department, 2001
Elementary grades K-6, Middle-grades 7-9, High School grades 10-12
Public kindergarten instituted in 1988-89
Peak enrollments for each category and the total are depicted in bold.

Click to return to the Top of the Demographic Element
III. HOUSING GROWTH AND REAL ESTATE TRENDS

A. Nashua’s Housing Characteristics as Reported in the 1990 Census

Housing opportunities within the City of Nashua range from high-density urban settings to suburban ones, and even a rural area in the southwest quadrant. The higher density single-family, duplex, and multi-family housing is largely concentrated in the older neighborhoods near the urban core. The lower density suburban subdivisions form an arc to the north, south, and west of the older sections.

The older high-density neighborhoods were developed largely in the 19th Century and early 20th Century and include such uses as neighborhood businesses, schools, and churches, as well as housing. Older neighborhoods such as French Hill, Crown Hill, the North End, and the Tree Streets have some of the City’s finest buildings and some of its housing most in need of attention.

The post World War II housing patterns can be divided into three periods. The residential areas built in the 1950’s and 1960’s are typically detached ranch or cape cod style houses on quarter acre lots. There are some duplexes and multi-family houses, generally located near to the central city. In the 1970’s and 1980’s, densities decreased further and homes became larger and were almost completely separated from other uses such as neighborhood businesses. The multi-family housing built in this era included garden apartments, townhouses, condominiums, and rental units and were located mainly near Route 101A and in south Nashua. Starting in the 1980’s and continuing through the 1990’s, we began to see some cluster housing in an effort to preserve open space. Also, the newer multi-family developments were often built with several buildings sharing a large common lawn and private road.

### TABLE III – 17
FAMILIES AND HOUSEHOLDS, 2000

<table>
<thead>
<tr>
<th></th>
<th>Total Households</th>
<th>One person Households</th>
<th>2 or More Person Households</th>
<th>Married Couple Households</th>
<th>Male Head Households</th>
<th>Female Head Households</th>
<th>Non-Family Households</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NASHUA</td>
<td>34,614</td>
<td>9,797 (28.3%)</td>
<td>17,079 (49.3%)</td>
<td>1,398 (4.0%)</td>
<td>3,606 (10.4%)</td>
<td>2,734 (7.9%)</td>
<td></td>
</tr>
<tr>
<td>NRPC Region</td>
<td>72,680</td>
<td>15,829 (21.8%)</td>
<td>42,912 (59.0%)</td>
<td>2,690 (3.7%)</td>
<td>6,554 (9.0%)</td>
<td>4,705 (6.5%)</td>
<td></td>
</tr>
<tr>
<td>Hillsborough</td>
<td>144,455</td>
<td>35,166 (24.3%)</td>
<td>79,432 (55.0%)</td>
<td>5,696 (3.9%)</td>
<td>13,727 (9.5%)</td>
<td>10,434 (7.2%)</td>
<td></td>
</tr>
<tr>
<td>County</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State of NH</td>
<td>474,606</td>
<td>116,014 (24.4%)</td>
<td>262,438 (55.3%)</td>
<td>18,261 (3.9%)</td>
<td>42,952 (9.0%)</td>
<td>34,941 (7.4%)</td>
<td></td>
</tr>
</tbody>
</table>

Source: 2000 US Census

**NOTE:** A household includes all the persons who occupy a housing unit. One person in the household is designated as the householder. A family consists of a householder and one or more other persons living in the same household who are related to the householder by birth, marriage, or adoption.

1. **Families and Households**

As can be seen in Table III – 17, nearly a quarter (28.3%) of Nashua’s households are one-person households. This number is higher than the region, county, and state primarily due to a higher concentration of young adults and a larger quantity of rental units. The City has 5% to 10% less married households than the region, county, and State, which translates into slightly more single parent households and non-family households than the region, county, and State.

2. **Housing Characteristics**

The building boom of the 1980’s has slowed considerably between 1990 and 2000. Nashua lagged behind the region and State in the percentage of additional housing, and further slowdown is expected as the City approaches build-out. This is a dramatic slowdown in comparison to the previous decade. The recession of the early to mid 1990’s had a
definite impact in the overall construction of housing units throughout the State, as well as the region. The low percentage on additional housing units during the 1990’s had impacted the current demand for housing in the region based on the current positive economic trend, forcing the cost of housing to increase dramatically since supply is severely limited.

**TABLE III – 18**

**TOTAL HOUSING UNITS, 1990-2000**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NASHUA</td>
<td>25,444</td>
<td>33,383</td>
<td>35,387</td>
<td>31.2%</td>
<td>6.0%</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>47,944</td>
<td>66,375</td>
<td>74,341</td>
<td>38.4%</td>
<td>12.0%</td>
</tr>
<tr>
<td>Hillsborough County</td>
<td>100,047</td>
<td>135,622</td>
<td>149,961</td>
<td>35.6%</td>
<td>10.6%</td>
</tr>
<tr>
<td>State of NH</td>
<td>349,172</td>
<td>503,904</td>
<td>547,024</td>
<td>44.3%</td>
<td>8.6%</td>
</tr>
</tbody>
</table>


Although the Region, County, and State outpaced Nashua’s growth of the 1990’s, the City of Nashua still accounts for almost half of the housing in the Region and 6.4% of the housing units in the State.

**Figure III - 3**

**TABLE III – 19**

**HOUSING CHARACTERISTICS, 2000**

<table>
<thead>
<tr>
<th></th>
<th>NASHUA</th>
<th>NRPC Region*</th>
<th>Hillsboroug. County</th>
<th>State of NH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Housing Units</strong></td>
<td>35,387</td>
<td>74,414</td>
<td>149,961</td>
<td>547,024</td>
</tr>
<tr>
<td><strong>Occupied Units</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owner-Occupied</td>
<td>34,614</td>
<td>72,680</td>
<td>144,455</td>
<td>474,606</td>
</tr>
<tr>
<td>% Owner-Occupied</td>
<td>19,703</td>
<td>50,911</td>
<td>93,748</td>
<td>330,700</td>
</tr>
<tr>
<td>Persons in Units</td>
<td>52,410</td>
<td>145,468</td>
<td>262,484</td>
<td>892,890</td>
</tr>
<tr>
<td>% of Population</td>
<td>60.5%</td>
<td>74.3%</td>
<td>64.9%</td>
<td>72.3%</td>
</tr>
<tr>
<td>Median Value</td>
<td>NA</td>
<td>N/A</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Renter-Occupied</td>
<td>14,911</td>
<td>21,689</td>
<td>50,707</td>
<td>143,906</td>
</tr>
<tr>
<td>% Renter-Occupied</td>
<td>43.1%</td>
<td>29.8%</td>
<td>35.1%</td>
<td>35.1%</td>
</tr>
<tr>
<td>Persons in Units</td>
<td>32,804</td>
<td>4 8,548</td>
<td>111,048</td>
<td>307,959</td>
</tr>
<tr>
<td>% of Population</td>
<td>37.5%</td>
<td>24.8%</td>
<td>29.2%</td>
<td>24.9%</td>
</tr>
<tr>
<td>Median Rent</td>
<td>NA</td>
<td>N/A</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Persons per Unit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owner-Occupied</td>
<td>2.66</td>
<td>2.85</td>
<td>2.80</td>
<td>2.70</td>
</tr>
<tr>
<td>Renter-Occupied</td>
<td>2.20</td>
<td>2.24</td>
<td>2.19</td>
<td>2.14</td>
</tr>
<tr>
<td>Total</td>
<td>2.46</td>
<td>2.67</td>
<td>2.58</td>
<td>2.53</td>
</tr>
</tbody>
</table>
As indicated in Table III -19, Nashua has a considerably higher percentage of renter-occupied units (43.1%) than the NRPC Region (29.8%), County (29.2%), and State (24.9%). Nashua possesses 10% of the renter-occupied units in the State and two-thirds (69%) of the renter-occupied units in the region. Yet even with this abundant supply the rental costs in Nashua are higher than the NRPC region, county, and State.

3. Housing Units By Type

### TABLE III - 20

**HOUSING UNITS BY TYPE, 1980-90**

(Parentheses indicate percentage of total housing units.)

<table>
<thead>
<tr>
<th></th>
<th>SINGLE FAMILY*</th>
<th>DUPLICES</th>
<th>DUPLICES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1980</td>
<td>1990</td>
<td>% CHANGE</td>
</tr>
<tr>
<td>NASHUA</td>
<td>12,399 (48.7%)</td>
<td>14,733 (44.1%)</td>
<td>18.8%</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>30,373 (63.4%)</td>
<td>37,845 (57.0%)</td>
<td>24.6%</td>
</tr>
<tr>
<td>Hillsborough</td>
<td>58,259 (52.8%)</td>
<td>71,819 (53.0%)</td>
<td>23.3%</td>
</tr>
<tr>
<td>County</td>
<td>245,259 (70.2%)</td>
<td>297,777 (59.1%)</td>
<td>21.4%</td>
</tr>
<tr>
<td>State of NH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MULTI-FAMILY UNITS†**

<table>
<thead>
<tr>
<th></th>
<th>1980</th>
<th>1990</th>
<th>% CHANGE</th>
<th>1980</th>
<th>1990</th>
<th>% CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASHUA</td>
<td>9,546 (37.5%)</td>
<td>14,347 (43%)</td>
<td>50.3%</td>
<td>627 (2.5%)</td>
<td>857 (2.6%)</td>
<td>36.7%</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>11,649 (24.3%)</td>
<td>20,836 (31.4%)</td>
<td>78.9%</td>
<td>1,373 (2.9%)</td>
<td>1,958 (2.9%)</td>
<td>42.6%</td>
</tr>
<tr>
<td>Hillsborough</td>
<td>29,320 (29.3%)</td>
<td>46,278 (34.1%)</td>
<td>57.8%</td>
<td>2,180 (2.2%)</td>
<td>3,409 (2.5%)</td>
<td>56.4%</td>
</tr>
<tr>
<td>County</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State of NH</td>
<td>84,891 (24.3%)</td>
<td>128,512 (25.5%)</td>
<td>51.4%</td>
<td>22,963 (6.6%)</td>
<td>35,334 (7.0%)</td>
<td>53.9%</td>
</tr>
</tbody>
</table>

Sources: US Census, 1980 STF3A Table 102, 1990 STF1A, Tables H4, H42, and H43, From NRPC’s Profile of the City of Nashua

* As designated by the Census “1 Unit, Detached.”
† Includes Census designation “1 Unit, Attached.”

**Single-Family Units**

Data describing housing units by type (Table III -20) indicate that the City of Nashua contains a large percentage (39%) of the region’s single-family homes. While the number of single-family units has increased substantially, from 12,399 in 1980 to 14,733 in 1990, the percentage of single-family units compared to total housing units in the City has decreased, from 48.7% in 1980 to 44.1% in 1990.
Multi-Family Units
The reason the percentage of single-family units decreased is that the number of multi-family units in Nashua increased by 50% in the 1980’s. Multi-family units in the region increased even faster at 62%, but Nashua still holds nearly 67% of multi-family units in the region. However, as will be seen, construction of multi-family units dropped substantially in the 1990’s.

Duplexes (Two-Family Units)
293 duplexes were built in Nashua in the 1980’s, an increase of about 10%. Duplexes represent 9.55 of the City’s housing stock and the City is the home of 61% of all duplexes in the region.

Mobile Homes
There were 857 mobile homes in Nashua in 1990, comprising 2.6% of the City’s housing stock. This represented 44% of the Region’s mobile home stock.

4. Age of Housing Stock

<table>
<thead>
<tr>
<th>TABLE III - 21</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSING UNITS BUILT BEFORE 1940, AS OF 1990</td>
</tr>
<tr>
<td>Pre-1940 Units</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>NASHUA</td>
</tr>
<tr>
<td>NRPC Region</td>
</tr>
<tr>
<td>Hillsborough County</td>
</tr>
<tr>
<td>State of NH</td>
</tr>
</tbody>
</table>

Source: 1990 US Census, STF3A Tables H25, H26, and H27; STF1A, from NRPC’s Profile of the City of Nashua.

As of 1990, 21.8% of Nashua’s housing stock was built before 1940. Keep in mind however, that 31.2 % of Nashua’s housing stock in 1990 was built in the 1980’s alone. While the building boom of the 1980’s has subsided, new development has not stopped altogether. Figures from Table I – 23 indicate that the average selling price of homes in the Nashua region, after a slow down in the early 1990’s, have picked up substantially. The number of sales closed has risen 180% from 1,059 in 1990 to 2,959 in 1998. Also, residential building permits have shown an increase since the slow down of the late 1980’s and early 1990’s. However, Nashua is running out of buildable land, and most building in the near future is likely to be renovation or rebuilding.

5. Households

<table>
<thead>
<tr>
<th>TABLE III - 22</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERSONS PER HOUSEHOLD, 1980-2000</td>
</tr>
<tr>
<td>1980</td>
</tr>
<tr>
<td>NASHUA</td>
</tr>
<tr>
<td>NRPC Region</td>
</tr>
<tr>
<td>Hillsborough County</td>
</tr>
<tr>
<td>State of NH</td>
</tr>
</tbody>
</table>


The mean number of persons per household has decreased steadily, echoing national trends. As indicated in the above table, the average person per household declined from 2.77 in 1980, to 2.57 in 1990, to 2.46 in 2000. This national trend is primarily due to changing social conditions and ever evolving household configurations. Nashua’s lower person per household rate as compared to region, county, and state is due to its higher rate of multi-family housing which tends to have smaller household size.
6. Housing Costs

**TABLE III - 23**
MEDIAN VALUE, OWNER-_OCCUPIED HOUSING, 1970-90

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NASHUA</td>
<td>$19,300</td>
<td>$55,800</td>
<td>$138,800</td>
</tr>
<tr>
<td>Hillsborough County</td>
<td>$18,400</td>
<td>$54,300</td>
<td>$137,500</td>
</tr>
<tr>
<td>State of NH</td>
<td>$16,400</td>
<td>$48,000</td>
<td>$129,400</td>
</tr>
</tbody>
</table>


Although home values decreased dramatically after the apex of the real estate boom of the 1980’s, the above table displays the phenomenal appreciation in value of housing since the 1970’s. Between 1970 and 1990, the median value of owner-occupied housing appreciated 619%! Of course, the real estate bust was disastrous for many people but the market has slowly recovered from the downfall and the average selling price of homes in the Nashua region in 1998 ($139,695) surpasses the median value of Nashua housing in 1990 ($138,000). Between 1970 and 1980 median value of owner-occupied housing increased 189%, between 1980 and 1990 it appreciated 149%, and since 1990 it dropped until 1994 at which point it has risen steadily, and is now on a par with 1990 value.

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B. Nashua’s Housing Statistics for the 1990’s

1. Housing Sales

**TABLE III – 24**
NASHUA REGION HOME SALES REPORTS: 1990-1999

<table>
<thead>
<tr>
<th>Period</th>
<th>New Listings</th>
<th>Avg. Current Listings</th>
<th>Sales Closed</th>
<th>Total Volume</th>
<th>Avg Selling Price</th>
<th>Days/Mrkt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>4,101</td>
<td>1,929</td>
<td>1,059</td>
<td>$160,012,721.00</td>
<td>$151,634.75</td>
<td>120</td>
</tr>
<tr>
<td>1991</td>
<td>3,842</td>
<td>1,857</td>
<td>1,460</td>
<td>$190,746,487.00</td>
<td>$132,134.25</td>
<td>118</td>
</tr>
<tr>
<td>1992</td>
<td>4,382</td>
<td>1,911</td>
<td>1,932</td>
<td>$228,222,180.00</td>
<td>$118,245.50</td>
<td>112</td>
</tr>
<tr>
<td>1993</td>
<td>4,547</td>
<td>1,883</td>
<td>2,180</td>
<td>$258,677,727.00</td>
<td>$118,396.00</td>
<td>106</td>
</tr>
<tr>
<td>1994</td>
<td>4,221</td>
<td>1,743</td>
<td>2,305</td>
<td>$273,165,087.00</td>
<td>$117,848.25</td>
<td>109</td>
</tr>
<tr>
<td>1995</td>
<td>2,448</td>
<td>879</td>
<td>2,047</td>
<td>$241,668,705.00</td>
<td>$117,872.50</td>
<td>152</td>
</tr>
<tr>
<td>1996</td>
<td>2,249</td>
<td>895</td>
<td>2,249</td>
<td>$279,037,332.00</td>
<td>$124,066.00</td>
<td>182</td>
</tr>
<tr>
<td>1997</td>
<td>2,844</td>
<td>999</td>
<td>2,606</td>
<td>$344,590,456.00</td>
<td>$130,804.25</td>
<td>183</td>
</tr>
<tr>
<td>1998</td>
<td>3,510</td>
<td>623</td>
<td>2,959</td>
<td>$416,733,186.00</td>
<td>$139,695.50</td>
<td>60</td>
</tr>
<tr>
<td>1999</td>
<td><strong>3,919</strong></td>
<td><strong>598</strong></td>
<td><strong>2,785</strong></td>
<td><strong>$422,905,078.00</strong></td>
<td><strong>$151,851.02</strong></td>
<td><strong>53</strong></td>
</tr>
</tbody>
</table>

Source: New Hampshire Association of Realtors.

Table III-24 illustrates the decline of the average selling price from the real estate boom of the 1980’s and also the steady rebound in selling prices since 1994. It was not until 1999 that the average selling price exceeded the value of homes in 1990. It has taken approximately nine years for area homes to recoup their value since the recession of the early 1990’s.

**FIGURE III-4**
The table above indicates the type and price of residential real estate sold in Nashua in 2000. The table indicates that 86.7% of total real estate sales were single-family residential (46.3%) or condominium (40.4%) sales. Single-family homes between $100,000 and $199,999 accounted for 32% of all real estate sales in 2000. Combined, single-family homes and condominiums in this same range account for 53.5% of the total residential real estate sales.

**FIGURE III – 5**
2. Rental Housing

As previously seen, Nashua contains the majority (68%) of the rental housing in the region. As of the 1990 census, nearly 43% of the housing units in the City were renter-occupied. Rental housing thus plays a very important role in the City, and fluctuations in vacancy rates and rental costs will affect a large segment of the City’s population. Table III-26 below gives the median monthly gross rental costs and rent range for 0 – 4 bedroom units in the greater Nashua area. The median monthly gross rental cost for all types of apartments was $874 in 2000.

<table>
<thead>
<tr>
<th>Bedroom</th>
<th>Sample Size</th>
<th>Median Rent</th>
<th>Rent Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>35</td>
<td>$585</td>
<td>$381 - 727</td>
</tr>
<tr>
<td>1</td>
<td>415</td>
<td>$769</td>
<td>$375 – 1,062</td>
</tr>
<tr>
<td>2</td>
<td>868</td>
<td>$896</td>
<td>$471 – 1,667</td>
</tr>
<tr>
<td>3</td>
<td>193</td>
<td>$1,023</td>
<td>$592 – 1,579</td>
</tr>
<tr>
<td>4+</td>
<td>11</td>
<td>***</td>
<td>$993 – 1,083</td>
</tr>
<tr>
<td>All</td>
<td>1,522</td>
<td>$874</td>
<td>$375 – 1,667</td>
</tr>
</tbody>
</table>

Source: New Hampshire Housing Finance Authority.

TABLE III - 27
GREATER NASHUA RENTAL COSTS
(Average for Two-Bedroom)

<table>
<thead>
<tr>
<th>Month/Year</th>
<th>Rent</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 1990</td>
<td>$695</td>
</tr>
<tr>
<td>September 1991</td>
<td>$654</td>
</tr>
<tr>
<td>September 1992</td>
<td>$687</td>
</tr>
<tr>
<td>September 1993</td>
<td>$733</td>
</tr>
<tr>
<td>April 1994</td>
<td>$711</td>
</tr>
<tr>
<td>April 1995</td>
<td>$683</td>
</tr>
</tbody>
</table>
As seen in the above table and on the graph below, the average cost of a two-bedroom rental apartment in Nashua rose 29% between 1990 and 2000, going from $695 to $896. As mentioned earlier, though Nashua contains 10% of all rental units in the State, the demand is so high that it is difficult to find a rental unit, and consequently forcing rent prices to go higher. This demand is reflected in the dramatic drop in rental vacancy rates between 1990 and 1998. In the early 1990’s, during the recession, the rental vacancy rate in Nashua was 17.1%; in 1998, after several years of economic recovery, it was 0.4%.

![FIGURE III – 6
MEDIAN MONTHLY GROSS RENTAL COSTS – NASHUA](image)

As mentioned earlier, though Nashua contains 10% of all rental units in the State, the demand is so high that it is difficult to find a rental unit, and consequently forcing rent prices to go higher. This demand is reflected in the dramatic drop in rental vacancy rates between 1990 and 1998. In the early 1990’s, during the recession, the rental vacancy rate in Nashua was 17.1%; in 1998, after several years of economic recovery, it was 0.4%.

**IV. EMPLOYMENT STATISTICS**

**A. Introduction**

The City of Nashua has historically been a regional economic hub and an employment center, and it continues to provide a wide range of opportunities for business and industry. Despite some recent declines, manufacturing remains a vital contributor to the economy of the City. Manufacturing provides employment to approximately 25% of Nashua’s private sector labor force, a proportion that is roughly twice the national rate. Although manufacturing remains a strong force in Nashua, it is the non-manufacturing industries that have made the greatest contribution to the local economy in the last decade. As recently as 1984, manufacturing jobs outnumbered non-manufacturing ones in Nashua. By 1994, however, non-manufacturing industries employed almost triple the number of workers employed by the City’s manufacturers.

The rapid growth in Nashua’s non-manufacturing industries is centered on the service and retail sectors. Retail trade has increased dramatically in recent years as Nashua has evolved into a regional shopping destination and has become the largest retail center in the State. Nashua’s business climate has benefited from several factors: its long standing industrial experience, especially in the textile and leather products industries which were dominant in the City until about
1960; its proximity to Boston and the development of high technology facilitated by public and private research in the Boston metropolitan area; and an environment which offers financial advantages to business development and expansion.

In addition to its dominant regional role, Nashua represents a substantial part of the State’s overall economy. The City is home to some of the State’s largest employers. Among Nashua’s major industries are BAE Systems and Compaq Computer Corp. Together they employ over 9,000 workers, or nearly 10% of all employed workers in the Nashua PMSA. In addition to defense-related and high technology equipment manufacturing concerns, there are numerous non-manufacturing industries. The City’s fourth and sixth largest employers are its two hospitals, the Southern NH Medical Center and St. Joseph’s Hospital. Table III - 28 lists Nashua’s largest employers. Despite the presence of several major employers, however, it should be noted that the City’s smaller businesses, including retail and service establishments, provide the bulk of local employment.

Employment levels in Nashua and in the surrounding area increased dramatically from the 1970’s to the late 1980’s. During the greatest period of economic expansion, from 1982 to 1988, employment reached record levels. During this same period, unemployment rates were also consistently lower than national averages. Unemployment rates increased during the recession of the late 1980s – early 1990’s, but have since dropped to a point nearly as low as that experienced at the height of the economic boom of the mid 1980’s. The following pages include statistics on the make up of the work force, unemployment rates, and other economic indicators.

### TABLE III - 28
**TWENTY LARGEST EMPLOYERS IN NASHUA, 1996**

<table>
<thead>
<tr>
<th>Company</th>
<th># Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Digital Equipment Corp. (now Compaq)</td>
<td>5,069 *</td>
</tr>
<tr>
<td>2. Sanders (now BAE)</td>
<td>4,300 *</td>
</tr>
<tr>
<td>3. Nashua School District</td>
<td>1,500</td>
</tr>
<tr>
<td>4. Southern NH Medical Center</td>
<td>1,400</td>
</tr>
<tr>
<td>5. Teradyne Connection Systems, Inc.</td>
<td>1,100</td>
</tr>
<tr>
<td>6. St. Joseph’s Hospital</td>
<td>1,050</td>
</tr>
<tr>
<td>7. Oxford Health Plans</td>
<td>900</td>
</tr>
<tr>
<td>8. City of Nashua</td>
<td>750</td>
</tr>
<tr>
<td>9. Fleet Bank NH</td>
<td>697</td>
</tr>
<tr>
<td>10. Nashua Corp.</td>
<td>677 *</td>
</tr>
<tr>
<td>11. Federal Aviation Administration</td>
<td>489</td>
</tr>
<tr>
<td>13. Lahey-Hitchcock Clinic</td>
<td>400</td>
</tr>
<tr>
<td>15. Charter Brookside Hospital**</td>
<td>350</td>
</tr>
<tr>
<td>16. Hampshire Chemical</td>
<td>318</td>
</tr>
<tr>
<td>17. International Shoe Machine Corp.</td>
<td>300 †</td>
</tr>
<tr>
<td>18. Batesville Casket Company</td>
<td>270</td>
</tr>
<tr>
<td>19. Rivier College</td>
<td>260</td>
</tr>
<tr>
<td>20. Matthew Thornton HMO **</td>
<td>225</td>
</tr>
</tbody>
</table>

* Includes employees in Merrimack, Hudson, and Amherst.
† Indicates 1995 employment figures. ** Company is no longer an employer in the City of Nashua.

Source: Greater Nashua Chamber of Commerce, Gateways to Greater Nashua, 1996.
Evidence of Nashua’s strong economy is illustrated by the City’s low unemployment rate in recent decades. With the exception of the period from the late 1980’s – early 1990’s, Nashua’s unemployment rate has generally been lower than that of the State of New Hampshire and the nation. In 1970, Nashua’s average annual unemployment rate was 2.6%, which compared favorably to a State rate of 3.4%. In 1980, Nashua’s rate was 3.5%, while the State’s stood at 5.2%.

Table III – 29 and Figure III - 6 show Nashua’s unemployment rates compared to that of the nation for the period 1986 to 2000. During this period, Nashua’s unemployment rate was lowest in 1987, at 2.7%, compared to a national rate of 5.5%. The City’s unemployment rate then rose every year until peaking at 7.8% in 1991, a rate that was higher than the national average of 6.7%. Since then, unemployment has steadily fallen, with rates for the late-1990’s comparing favorably to those of the mid-1980’s. If anything, the City is in a comparatively better position in the late 1990’s, as the national economy is stronger (reflected by lower national unemployment rates compared to the 1980s), and because growth is proceeding at a more sustainable rate, without the speculative building characteristic of the 1980s. From 1994 to the present time, Nashua’s unemployment rate has been lower than the nation’s. A more in-depth discussion of economic issues can be found in the Economic Development element.

<table>
<thead>
<tr>
<th>TABLE III-29</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNEMPLOYMENT RATES, NASHUA COMPARED TO US</td>
</tr>
<tr>
<td>NASHUA</td>
</tr>
<tr>
<td>UNITED STATES</td>
</tr>
</tbody>
</table>

Source: NH Department of Employment Security.

2. Employment Profile

a. Manufacturing

Nashua has historically been a manufacturing city. With the combined waterpower of the Nashua and Merrimack Rivers at its disposal, it is not surprising that Nashua evolved into one of New England’s premier mill cities from the early 1800s through the middle part of this century. As recently as 1980, slightly over 50% of those employed in private industry worked in manufacturing. Nashua retained a strong industrial base through the early 1980’s, with the number of manufacturing employees peaking in 1984. This began to erode soon thereafter, with the downturn in the regional and national economy. During the 1980’s, the large scale relocation of manufacturing (especially of non-durable goods)
operations from the United States to countries with less expensive labor costs accelerated, contributing to the further erosion of manufacturing as the foundation of both the national and regional economies. Between 1986 and 1993, the City lost 8,464 manufacturing jobs, and the share of those employed in manufacturing dropped from nearly 50% of the private workforce in the mid 1980’s to 25% by 1993, a significant reduction. Manufacturing has recently begun to rebound, but this sector is still not as strong as it was in the early 1980’s. Table III - 30 and Figure III - 8 illustrate the relationship between manufacturing and non-manufacturing employment in the City for the period from 1980 –1998.

Over the last two decades, the service and retail / wholesale trade sectors have experienced significant growth, and have contributed the most to the recent increase in the number of jobs in the region and in Nashua. However, jobs in these sectors tend to pay less than manufacturing jobs, nor do they have the same multiplier effect on the economy as manufacturing. One estimate is that one manufacturing job creates four jobs in the retail, service and distribution sectors. The importance of manufacturing to the local and regional economy is illustrated by the fact that in 1996, only 7% of employers were manufacturing enterprises, representing 24% of the workforce, with an average weekly wage nearly 50% higher than the average for all industries. In 1997, the average yearly earnings for all employees (all sectors) was $34,004.25, while for manufacturing employees it was $53,383.60. This data clearly reiterates the importance of manufacturing to the local economy.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Manufac.</th>
<th>Non-Manufac.</th>
<th>% Manufac.</th>
<th>TOTAL</th>
<th>Manufac.</th>
<th>Non-Manufac.</th>
<th>% Manufac.</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>158</td>
<td>1,224</td>
<td>11.43%</td>
<td>1,382</td>
<td>17,032</td>
<td>16,889</td>
<td>50.21%</td>
<td>33,921</td>
</tr>
<tr>
<td>1981</td>
<td>158</td>
<td>1,277</td>
<td>11.01%</td>
<td>1,435</td>
<td>17,976</td>
<td>18,013</td>
<td>49.95%</td>
<td>35,989</td>
</tr>
<tr>
<td>1982</td>
<td>157</td>
<td>1,324</td>
<td>10.60%</td>
<td>1,481</td>
<td>17,974</td>
<td>18,182</td>
<td>49.71%</td>
<td>36,156</td>
</tr>
<tr>
<td>1983</td>
<td>151</td>
<td>1,379</td>
<td>9.87%</td>
<td>1,530</td>
<td>19,055</td>
<td>19,249</td>
<td>49.75%</td>
<td>38,304</td>
</tr>
<tr>
<td>1984</td>
<td>163</td>
<td>1,578</td>
<td>9.36%</td>
<td>1,741</td>
<td>21,778</td>
<td>21,145</td>
<td>50.74%</td>
<td>42,923</td>
</tr>
<tr>
<td>1985</td>
<td>164</td>
<td>1,676</td>
<td>8.91%</td>
<td>1,840</td>
<td>21,698</td>
<td>22,831</td>
<td>48.73%</td>
<td>44,529</td>
</tr>
<tr>
<td>1986</td>
<td>162</td>
<td>1,814</td>
<td>8.20%</td>
<td>1,976</td>
<td>19,671</td>
<td>20,060</td>
<td>43.00%</td>
<td>45,751</td>
</tr>
<tr>
<td>1987</td>
<td>162</td>
<td>1,911</td>
<td>7.81%</td>
<td>2,073</td>
<td>19,212</td>
<td>28,415</td>
<td>40.34%</td>
<td>47,627</td>
</tr>
<tr>
<td>1988</td>
<td>159</td>
<td>1,917</td>
<td>7.66%</td>
<td>2,076</td>
<td>17,163</td>
<td>29,713</td>
<td>36.61%</td>
<td>46,876</td>
</tr>
<tr>
<td>1989</td>
<td>152</td>
<td>1,913</td>
<td>7.36%</td>
<td>2,065</td>
<td>15,055</td>
<td>30,128</td>
<td>33.32%</td>
<td>45,183</td>
</tr>
<tr>
<td>1990</td>
<td>161</td>
<td>1,878</td>
<td>7.90%</td>
<td>2,039</td>
<td>13,764</td>
<td>29,145</td>
<td>32.08%</td>
<td>42,909</td>
</tr>
<tr>
<td>1991</td>
<td>155</td>
<td>1,989</td>
<td>7.23%</td>
<td>2,144</td>
<td>13,309</td>
<td>27,307</td>
<td>32.77%</td>
<td>40,616</td>
</tr>
<tr>
<td>1992</td>
<td>165</td>
<td>2,043</td>
<td>7.47%</td>
<td>2,208</td>
<td>12,788</td>
<td>28,199</td>
<td>31.20%</td>
<td>40,987</td>
</tr>
<tr>
<td>1993</td>
<td>159</td>
<td>2,139</td>
<td>6.92%</td>
<td>2,298</td>
<td>11,207</td>
<td>32,713</td>
<td>25.52%</td>
<td>43,920</td>
</tr>
<tr>
<td>1994</td>
<td>168</td>
<td>2,324</td>
<td>6.74%</td>
<td>2,492</td>
<td>11,547</td>
<td>33,561</td>
<td>25.60%</td>
<td>45,108</td>
</tr>
<tr>
<td>1995</td>
<td>170</td>
<td>2,331</td>
<td>6.80%</td>
<td>2,501</td>
<td>11,469</td>
<td>35,500</td>
<td>24.42%</td>
<td>46,969</td>
</tr>
<tr>
<td>1996</td>
<td>175</td>
<td>2,396</td>
<td>6.81%</td>
<td>2,571</td>
<td>11,808</td>
<td>36,974</td>
<td>24.21%</td>
<td>48,782</td>
</tr>
<tr>
<td>1997</td>
<td>183</td>
<td>2,597</td>
<td>6.34%</td>
<td>2,885</td>
<td>12,877</td>
<td>38,954</td>
<td>24.84%</td>
<td>51,831</td>
</tr>
<tr>
<td>1998</td>
<td>172</td>
<td>2,364</td>
<td>6.78%</td>
<td>2,536</td>
<td>13,281</td>
<td>39,827</td>
<td>25.01%</td>
<td>53,108</td>
</tr>
</tbody>
</table>

Since 1980, several interesting trends in employment and the manufacturing base can be seen. The number of manufacturing firms (“units” in the terminology of the Department of Employment Security) dropped to a low of 152 in 1989, while the low point in the number of manufacturing employees occurred in 1993, with 11,207 employees out of a total of 43,920 in private employment. This lag may be due to the downsizing phenomenon, with a few large employers laying off a significant number of workers in the early-mid 1990’s. Since 1993, manufacturing has been rebounding, as reflected both in the number of firms and employees.

A total of 172 manufacturing firms were located in Nashua during 1998. This number has shown some fluctuation in recent years, but still shows an increase from the 159 manufacturing firms that were located in the City during 1993. The number of manufacturing employees reached 13,281 in 1998, or a 18.5% increase over 1993. In fact, according to the New Hampshire Department of Employment Security (NHDES), Nashua had the greatest number of manufacturing employees of any municipality in the State in 1998, or approximately one of every eight Granite State manufacturing jobs. Hopefully this trend of a rebounding manufacturing sector will continue into the early 21st century.

While manufacturing has declined, employment in the service and trade sectors has exploded. The number of non-manufacturing jobs in Nashua increased from 16,889 in 1980 to 39,827 in 1998, more than doubling the employment in these sectors. Since the end of the recession in the early 1990’s, the City has been adding an average of 1,500 to 2,000 non-manufacturing jobs per year. Total private sector employment in Nashua reached 49,092 in 1998, as compared to 33,921 in 1980. Therefore, while the manufacturing sector is rebounding from its recent decline, it is unlikely that it will ever regain its former share of the employment pie, which in 1984 amounted to over half of the City’s employment base.

b. General Employment Profile

While manufacturing has historically been the foundation of Nashua’s economy, other sectors of the economy have expanded rapidly in recent decades, collectively providing the majority of employment in Nashua from the mid-1980’s. Table III - 31 illustrates the percentage of City employment in various sectors from 1970 -1998. The decline of manufacturing employment over this period is striking, decreasing from 47% of total employment in 1970 to 25% in 1997.
During the same period, however, other sectors grew significantly. The trade sector, made up of both wholesale and retail trade, increased from 18% of employment in 1970 to 27% of employment in 1998. During this period, Nashua developed into a major retail destination for shoppers from Massachusetts and south-central New Hampshire, and remains so today. Other expanding sectors include the service sector, increasing from 19% of total employment in 1970 to 30% in 1998, and government, doubling in employment from 4% of the workforce in 1970 to 8% in 1998. The construction sector declined from 5% of employment in 1970 to 2% in 1998.

**TABLE III-31**

**LABOR FORCE COMPOSITION IN NASHUA 1970-1998**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>0.1%</td>
<td>1.0%</td>
<td>0.3%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Construction</td>
<td>5.0%</td>
<td>3.6%</td>
<td>1.8%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>46.9%</td>
<td>45.9%</td>
<td>30.3%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Trans., Comm., Utilities</td>
<td>4.0%</td>
<td>4.0%</td>
<td>2.4%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Trade (Wholesale &amp; Retail)</td>
<td>17.9%</td>
<td>17.3%</td>
<td>26.5%</td>
<td>26.5%</td>
</tr>
<tr>
<td>Finance, Insurance, Real Estate</td>
<td>3.2%</td>
<td>4.5%</td>
<td>5.6%</td>
<td>5.1%</td>
</tr>
<tr>
<td>Services</td>
<td>18.9%</td>
<td>20.3%</td>
<td>25.5%</td>
<td>29.8%</td>
</tr>
<tr>
<td>Government</td>
<td>4.0%</td>
<td>4.3%</td>
<td>7.5%</td>
<td>7.6%</td>
</tr>
</tbody>
</table>

A comprehensive picture of the employment situation should also take into account the wages earned in the various sectors. Table III – 32 shows the distribution of employment and wages in 1998, the most recent year for which complete data is available. The employment shares by industry discussed above are found here, as well as information on the average weekly wage earned in each classification. As seen in the far right column, the average weekly wage of all employment in 1998 was $696.45. Excluding non-classifiable establishments, the highest weekly wages are found in manufacturing, particularly durable goods manufacturing, and in wholesale trade. Retail trade employs 22% of the workforce, and has the lowest average weekly wage. These statistics reinforce, yet again, the importance of the manufacturing sector. While there are many benefits to be gained from being a center of retail trade, a study should be performed to examine whether the expansion of this sector is at the expense of manufacturing and wholesale trade.

**TABLE III-32**

**CITY OF NASHUA**

**DISTRIBUTION OF EMPLOYMENT AND WAGES, 1998**

<table>
<thead>
<tr>
<th>SIC CODE</th>
<th>INDUSTRY</th>
<th>UNITS</th>
<th>AVE. ANNUAL EMPLOYMENT</th>
<th>% OF TOTAL EMPLOYMENT</th>
<th>AVE. WEEKLY WAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total - Private Industries and Government</td>
<td>2,536</td>
<td>53,108</td>
<td>100%</td>
<td>$696.45</td>
</tr>
<tr>
<td></td>
<td>Total - Private Industries</td>
<td>2,511</td>
<td>49,092</td>
<td>92.4%</td>
<td>$691.52</td>
</tr>
<tr>
<td>01 - 09</td>
<td>Agriculture, Forestry and Fishing</td>
<td>30</td>
<td>207</td>
<td>0.4%</td>
<td>$379.26</td>
</tr>
<tr>
<td>10 - 14</td>
<td>Mining</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>15 - 17</td>
<td>Construction</td>
<td>142</td>
<td>1,124</td>
<td>2.1%</td>
<td>$716.37</td>
</tr>
<tr>
<td>20 - 39</td>
<td>Manufacturing</td>
<td>172</td>
<td>13,281</td>
<td>25.0%</td>
<td>$1,043.72</td>
</tr>
<tr>
<td></td>
<td>Durable Goods</td>
<td>114</td>
<td>11,387</td>
<td>21.4%</td>
<td>$1,074.28</td>
</tr>
<tr>
<td></td>
<td>Non-Durable Goods</td>
<td>58</td>
<td>1,894</td>
<td>3.6%</td>
<td>$860.02</td>
</tr>
<tr>
<td>40 - 49</td>
<td>Transportation, Communications, And Utilities</td>
<td>63</td>
<td>1,829</td>
<td>3.4%</td>
<td>$585.90</td>
</tr>
<tr>
<td>50 - 51</td>
<td>Wholesale Trade</td>
<td>358</td>
<td>2,310</td>
<td>4.3%</td>
<td>$927.40</td>
</tr>
</tbody>
</table>
c. High Tech

The City of Nashua is home to several large employers in the high tech industry. Corporations in Nashua such as Compaq (formally Digital Equipment Corp.) and BAE Systems are some of the areas largest employers, totaling over 7,000 employees between them. The high tech field has played a major role in the success of the regional economy and will continue to impact the area’s future. Based on information provided below, of the 72,796 high tech employment related jobs, 22,545 (31%) are located in the Nashua Primary Statistical Area (PMSA). This number is up slightly from 1998 and leads all other New Hampshire cities. The Portsmouth-Rochester area is second with 13,734 employees in the high tech field.

The data supplied by NHDES is based on all jobs in the industry regarded as high tech, including employees who may not be actually physically engaged in R&D work, but are employed by companies within the industry. The table below shows that there have been steady yearly increases in the number of workers employed in the high tech industry. These numbers were derived by identifying high tech industries by their three-digit Standard Industrial Classification (SIC) code. Between 1998 and 1999, there was an increase of 472 jobs in the Nashua PMSA, with the majority classified as R&D Intensive. Average weekly wages have increased more within the state since 1996, up $158.14 compared to $137.69 in the Nashua PMSA define, although overall wages are still higher in the Nashua area.

<table>
<thead>
<tr>
<th>1999</th>
<th>High Tech Employment</th>
<th>R&amp;D Intensive</th>
<th>R&amp;D Moderate</th>
<th>Average Weekly Wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nashua PMSA</td>
<td>22,547</td>
<td>20,462</td>
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V. SUMMARY AND CONCLUSIONS

A. Demographic Summary

1. Nashua’s Recent Population Growth
During the first half of the century, Nashua’s population remained fairly stable, exhibiting increases largely due to natural increase. Starting in the 1960’s, however, Nashua’s population began to explode, as immigration overtook natural increase as the primary means of population growth. During the 1960’s, Nashua’s population went from 39,096 to 55,820, an increase of 43%. High growth rates continued through the 1970’s and 1980’s, with the result that Nashua doubled in population between 1960 and 1990 (39,069 to 79,662). Growth rates in the 1990’s have been much less than in the previous three decades, though Nashua is continuing to grow. Nashua’s population 2000 was 86,605.

2. Population Projections

The New Hampshire Office of State Planning (OSP) periodically issues population projections for each municipality in the State. The OSP projects that Nashua’s population will reach 91,145 in 2020, a 14% increase over the 1990 population. This represents an average annual growth rate of .38% between 2000 and 2020, compared to a .75% growth rate for the 1990’s. These population and growth rate projections appear sound in light of the fact that Nashua is rapidly running out of large tracts suitable for residential development. As build-out is approached, the rate of growth can be expected to slow, as most new development will occur on smaller “infill” sites.

However, should the City, through its legislative process, decide to rezone significant residential areas to permit a higher or lower density of development than is currently allowed, it is possible that the build-out population could be higher or lower than the 91,145 that OSP projects. Application of a cohort-survival model to Nashua’s 1990 population indicates that Nashua has the potential to grow to 95,000 – 100,000, with the assumption that housing can be provided for a population in that range. Unless large-scale rezoning occurs, it is the opinion of Planning Department Staff that Nashua’s build-out population will be closer to the OSP estimate than to the higher estimate given by the cohort survival model.

3. Aging of the Population

The cohort survival projections mentioned above are perhaps most useful in projecting the possible future age profile of a population. This model predicts that Nashua’s population will be aging over the next several decades. The model is limited to projections based on the latest Census (1990) data, and hence can only project out 20 years from that point, which for the 1990 Census is the year 2010. Despite this limitation, the model did yield some interesting findings.

Perhaps the most important finding of the model is the projected increase in the number of senior citizens. The population of males over 65 is projected to increase 31% over 1990 levels, reaching 4,005 by the year 2010. The population of females in the same age group is projected to increase by 24% over 1990 levels, reaching 6,248 in 2010.

While the share of elderly as compared to the total population is projected to increase only slightly, the increase in absolute numbers does raise some important planning and policy issues. One is that there will likely be an increased demand for elderly housing, both of the independent living and managed care types of facilities. Another implication is an increased demand for social services and medical care, which will impact area hospitals, social service agencies and the City’s Community Services Division. It is perhaps not too early for these institutions to plan for an increase in the elderly population.

4. School Enrollment Trends and Projections

As Nashua’s population increased dramatically in recent decades, it is not surprising that the number of public school children would also increase. In 1980, there were 5,476 students at the elementary level, 2,749 at the Junior High level, and 2,658 students at the High School level, for a total of 10,883 students in the public school system. By 2000, the total number of students in the system increased by 19.8%, for a current total of 13,581 students. Elementary enrollments jumped in 1988, when public Kindergarten was instituted.

The Nashua School District hired the New England School Development Council (NESDEC) to conduct a study and prepare a report on projected school enrollments and available instructional space with respect to current and future educational needs. NESDEC used a cohort survival method to project school enrollments to the 2005-2006 school year. At the elementary level, NESDEC is projecting that enrollments will gradually decline after the peak year of 1998 – 1999, due to falling birthrates and the slower rate of immigration of the 1990’s, as compared to previous periods.

At the middle school or Junior High level, NESDEC projects that enrollments will increase, peak, and then drop off during the ten year period. As seen in the table, the peak year for middle school enrollment is projected to be 2001-2002, with 3,202 students. At the High School level, NESDEC is projecting that enrollments will continue to increase, peaking
around the year 2005 – 2006. Interestingly, the total number of students at all grade levels is seen to peak in the (as of this writing) current school year of 2000-2001.

Thus, a test of NESDEC’s assumptions and projections should be able to be made in the very near future. It should be noted that these projections are based on a continuation of the current grade configuration at the various grade levels. If, as NESDEC recommends, grade 9 moves into the High School level, and grade 6 moves into the Junior High level, the projections for those levels will need to be revised accordingly. Such internal shifting of students will not, however, affect the total number of students in the system.

5. Housing and Real Estate Highlights

Nashua has experienced a slowdown in the construction of new housing units during the 1990’s (increase of 6%) after a strong boom in the 1980’s. The low percentage on additional housing units during the 1990’s had impacted the current demand for housing in the region based on the current positive economic trend, forcing the cost of housing to increase dramatically since supply is severely limited.

General Housing Characteristics

The City of Nashua contains a large percentage (39%) of the single-family homes in the region. While the number of single-family units has increased substantially from 12,399 in 1980 to 14,733 in 1990, the percentage of single-family units compared to total housing units in the City has decreased, from 48.7% in 1980 to 44.1% in 1990. The reason the percentage of single-family units decreased is that the number of multi-family units in Nashua increased by 50% in the 1980’s. Multi-family units in the region increased even faster at 62%, but Nashua still contains the majority (nearly 67%) of multi-family units in the region. 293 duplexes were built in Nashua in the 1980’s, an increase of about 10%. Duplexes represent 9.5% of the City’s housing stock and the City is the home of 61% of all duplexes in the region. However, since the recession of the late-1980’s to early 1990’s, very few multi-family and duplex units have been built in the City. The majority of housing built in the 1990’s has been single-family homes. The sharp decline in the number of duplexes and multi-family units built in the 1990’s has been one factor contributing to the sharp increase in rental costs (see Rental Housing below), as demand has far exceeded supply.

Housing Costs

The average selling price of homes in the Nashua region, after a slowdown in the early 1990’s, have picked up substantially. The number of sales closed has risen 180% from 1,059 in 1990 to a high of 2,959 in 1998. Also, residential building permits have shown an increase since the slow down of the late 1980’s and early 1990’s.

The average selling price of a home in the Nashua region in 1999 (151,851) surpasses the median value of Nashua housing in 1990 ($138,000). Between 1970 and 1980, the median value of owner-occupied housing increased by 189%; between 1980 and 1990 it increased by 149%; and since 1990 it has dropped, until 1994, when it began to rise steadily.

Rental Housing

In 1990, Nashua had a considerably higher percentage of renter-occupied units (42.3%) than the Region (31.2%), County (36.3%), and State (31.8%). Nashua possesses 10% of the renter-occupied units in the State and two-thirds (68%) of the renter-occupied units in the region. As mentioned above, rents have risen sharply in recent years as demand for rental housing has far outpaced supply. In 1990, the rental vacancy rate in Nashua was 17.1%; in 1998 it dropped to 4%. This is a much greater change than the State average, for which the rental vacancy rate was 8.7% in 1990, and 2.3% in 1998.

Given the dramatic drop in vacancy rates, it is not surprising that the average cost of a two-bedroom rental apartment in Nashua rose 29% in the ten years between 1990 and 2000, from $695 to $896. The median monthly gross rental cost for all types of apartments was $874 in 2000.

6. Employment Trends

The City of Nashua has historically been a regional economic hub and employment center, and continues to provide
a wide range of opportunities for business and industry. Despite some recent declines, manufacturing remains a vital contributor to the economy of the City. Manufacturing provides employment to approximately 25% of Nashua’s private sector labor force, a proportion roughly twice the national rate. Although manufacturing remains a strong force in Nashua, it is the non-manufacturing businesses that have made the greatest contribution to the local economy in the last decade. As recently as 1984, manufacturing jobs outnumbered those in non-manufacturing industries in Nashua. By 1994, however, non-manufacturing industries employed almost triple the number of workers employed by the City’s manufacturers.

The rapid growth in Nashua’s non-manufacturing industries is centered on the service and retail sectors. Retail trade has increased dramatically in recent years as Nashua has evolved into a regional shopping destination and has become the largest retail center in the State. Since 1980, several interesting trends in employment and the manufacturing base can be seen. The number of manufacturing firms (“units” in the terminology of the Department of Employment Security) dropped to a low of 152 in 1989, while the low point in the number of manufacturing employees occurred in 1993, with 11,207 employees out of a total of 43,920 in private employment. This lag may be due to the downsizing phenomenon, with a few large employers laying off a significant number of workers in the early-mid 1990’s. Since 1993, manufacturing has rebounded, as reflected both in the number of firms and employees. In 1997, the number of manufacturing firms in Nashua reached 194, an increase of 35 over 1993, representing a 22% increase. The number of manufacturing employees reached 12,835 in 1997, a 14.5% increase over 1993. In fact, according to NHDES, Nashua had the greatest number of manufacturing employees of any municipality in the State in 1997, or one of every eight Granite State manufacturing jobs. Thus, Nashua not only led the State, but was the only city with more than 10,000 manufacturing employees. It is to be hoped that this trend of a rebounding manufacturing sector will continue into the early 21st century.

The service and trade sectors have exploded in the period during which manufacturing has declined. The number of non-manufacturing jobs in Nashua has increased from 16,889 in 1980 to 38,990 in 1997, more than doubling the employment in these sectors. Since the end of the recession in the early 1990’s, the City has been adding an average of between 1,500 - 2,000 non-manufacturing jobs per year. Total private sector employment in Nashua reached 51,825 in 1997, as compared to 33,921 in 1980. Therefore, while the manufacturing sector is rebounding from its recent decline, it is unlikely that manufacturing will ever regain its former share of the employment pie, which in 1984 amounted to over half of the City’s employment base. Employment in the high tech field has shown a steady increase in the past few years and Nashua remains as the leader in the number of jobs this industry produces for the State of New Hampshire.

B. Conclusions

Over the last three decades, Nashua has evolved from a rapidly growing City into a mature one, leaving the rapid, and sometimes chaotic, growing pains of adolescence behind in exchange for the slower pace and, hopefully, wiser growth of maturity. Absent any major changes in zoning within the next twenty years, Nashua will become a fully built-out community by 2020, with approximately 90,000 residents and 36,000 housing units. After build-out has been reached, most new development, aside from that on a few scattered infill lots, will consist of re-development. This will represent an unprecedented opportunity for the City to ponder its past, consider its present, and reinvent its future.

Early in the next century, the City may adopt a more “introspective” stance, turning its vision and planning efforts inward towards its downtown and established residential neighborhoods. This trend is already starting, with the dramatic revitalization of the downtown starting in the early 1990’s, and the rehabilitation of many older, once rundown neighborhoods surrounding the central business district. The crucial point in planning for the future of Nashua is NOW. Through the planning process and community involvement, the City now has the opportunity to clearly envision its long-term future, and act to bring about the best possible balance of economic growth, environmental protection, and civic culture.

Nashua will continue to be a dynamic and ever-evolving place, although this evolution and growth will differ in character from that of the past. Hopefully, the City’s citizens and leaders can work hand-in-hand to maintain Nashua as a premier place to live and work.
IV. CONSERVATION AND PRESERVATION ELEMENT

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II. Introduction

When most people think of Nashua, they probably don’t think of “wild, open spaces.” As such, Nashua differs from many municipalities in New Hampshire that have extensive forests, lakes, and mountains. While Nashua is certainly a city, where the area of human habitat exceeds the area of wildlife habitat, there are still many natural and scenic areas worthy of protection and conservation. This element of the Master Plan will examine the natural aspects of Nashua, the location and characteristics of the City’s natural areas, and the diversity of wildlife habitats. It will also make recommendations on which areas to preserve, and which planning techniques to employ, in order to ensure that Nashua retains at least a modicum of what helps to make New Hampshire so special; its great open spaces and diversity of life.

It is intended that this Conservation and Preservation Element of the Nashua 2000 Master Plan be in conformity with the draft American Planning Association (APA) Policy Guide on Sustainability. The draft policy guide defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

In its Executive Summary, the adopted APA policy states that:

“A variety of symptoms lead us to the conclusion that current development patterns are not sustainable. Global signs include global warming and climate variation, widespread soil degradation, deforestation, species extinction, and increasing disparities between rich and poor. A number of local problems are apparent as well, including central city disinvestment, loss of rich agricultural land, suburban sprawl, depletion of groundwater resources, and ever-increasing traffic congestion.”

To take an active role in redirecting the trend toward unsustainability, the APA and its chapters can support and develop planning policies that:

- Help reduce dependence on fossil fuels, underground metals, and minerals.
- Help reduce dependence on chemicals and other man-made substances that can accumulate in the biosphere.
• Help reduce dependence on activities that encroach upon nature.
• Meet the hierarchy of human needs fairly and efficiently.

*With these four planning policies as a guiding framework, local, regional, and state decision-makers can devise planning policies and action plans appropriate to their particular circumstances and communities.*” (emphasis added)

In Nashua, several indications of unsustainable development are suburban sprawl, loss of open space and forests, and increasing traffic congestion. This Plan recognizes that Nashua is approaching build-out, and that the development patterns of the past cannot be changed. However, the Plan can recommend policies and actions which will help to ensure a movement towards sustainability and less environmentally destructive and land consumptive development practices in the future. This Plan also recognizes that Nashua is the central city for its region, and as such is a primary employment and retail center. A regional approach to sustainability would recognize this fact, and perhaps recommend that Nashua on the whole be considered an “infill” community at the regional level.

Therefore, a movement towards sustainability in Nashua will entail a careful balancing of industrial, commercial, and residential growth with measures to protect the most important remaining wildlife habitat and open spaces. Actions taken to move towards greater sustainability should actually enhance the City’s economic health. The traffic congestion that currently plagues the City, for example, is perceived as a disincentive by many businesses that would otherwise choose to locate here. Development patterns that permit alternative transportation and shorter commutes would help relieve traffic congestion, and could also help preserve open space and wildlife habitat in developing areas.

In its transition to the 21st century, Nashua can take a stand in proclaiming the importance of moving towards local and global sustainability. Such a stance recognizes the interconnectedness of local conditions and actions with the global environmental situation, which is clearly deteriorating. The City can adopt policies that reflect this recognition of interconnectedness, policies that will help move the local economy and local land-use decisions in a sustainable direction.

**Click to return to the top of the Conservation & Preservation Element**

### A. Regional Context

Nashua is located on the Massachusetts border at 42 degrees north latitude. This latitude in the eastern United States enjoys a temperate climate, with four distinct seasons. There are six months (May – October) during which deciduous trees bear leaves, and six “leaf-less” months. South-central New Hampshire is located in the transitional forest zone, a broad area of central New England that forms a transition zone between the oak / hickory forests of southern New England and the mid-Atlantic states, and the northern hardwood forests of northern New York, northern New England, and southern Canada. The most common forest tree in this transition zone is the white pine, a species of high economic value. South-Central New Hampshire receives approximately 43 inches of precipitation per year. Most of this precipitation is evenly distributed over the course of the year, though there can be dry periods in the mid-summer. The area’s climate is ideal for the growth of trees, and as the natural climax vegetation in the area is mixed-hardwood/coniferous forest, any open fields left undeveloped and untended will eventually revert to this forest type.

**Click to return to the top of the Conservation & Preservation Element**

### B. Natural Nashua
Regional context aside, what are Nashua’s distinctive natural features? This discussion, intended as a general overview, will be organized by examining the following areas: topography, drainage basins / water resources, and soils. Drainage basins and water resources will be discussed in greater detail in the Water Resources section of this element (Part III). The discussion of specific natural areas and priorities for conservation within the City will be taken up in the Natural Resources Inventory section of this element (Part II).

1. Topography

Unlike much of the rest of New Hampshire, Nashua is relatively flat, with gently rolling hills making up most of its terrain. The lowest elevation in the City is 90 feet, where the Merrimack River enters Massachusetts. The City’s highest elevation is 426 feet on top of Gilboa Hill, which is now part of the Sky Meadow Planned Residential Development. Other high points include Long Hill (422 feet) and the Four Hills (314 feet). Map IV – 1 is a topographic map of Nashua.

2. Drainage Basins / Water Resources

The entire City of Nashua is located within the Merrimack River drainage basin, or watershed. However, there are several sub-watersheds in Nashua that are part of the larger Merrimack River watershed. The most significant of these is the Nashua River watershed, followed by the Pennichuck Brook watershed. Map IV – 7 shows the location of these watersheds within the City limits. These watersheds will be discussed in greater detail in the Water Resources section of this element (Part III).

3. Soils

In the past, before public sewer and water were widely available, detailed soil analyses were necessary for most types of development, especially for homes using on-site septic systems. Septic systems on excessively well-drained or poorly drained soils posed the potential for groundwater contamination. Some soil types were found to be generally unsuitable for most foundations, while other soils presented other constraints to development. Today, however, lands that were once marginal can be developed using state of the art building techniques. Such development may be more expensive and require greater site planning than development on more suitable soils, but in most cases it is possible nonetheless.

The two major exceptions are development within wetland soils and on very steep slopes. State and local wetland regulations preclude most development on wetland soils in any case, while steep slopes are usually passed over by most developers due to the high cost of construction there. However, as the better land is used up, more pressure is placed on marginal lands, including steep slopes, and for that reason municipalities should be prepared to address site and design issues for proposed development on marginal lands to prevent or minimize environmental and structural damage.

This element of the Master Plan will not go into a detailed examination and analysis of soil conditions in Nashua, because, as a largely urban / developed municipality, with public water and sewer available in most locations, soil-related building constraints are largely not an issue here as they are in rural New Hampshire. However, there are several locations in Nashua, for the most part undeveloped, where soil constraints should at least be briefly examined. Pages II-6 through II-10 of the 1985 Master Plan discuss soil types and issues in greater detail.

The following areas were singled out in the 1985 Master Plan as areas of special concern. Please see Map IV - 2 for the location of these areas.
Map IV-2 Soil Constraints to Development

- Tinker Road area: The Tinker Road area is characterized by well-drained and excessively well-drained sandy soils. These soils have only slight to moderate limitations for most types of development. However, because these sandy soils are located along Pennichuck Brook, caution must be taken with more intensive development to minimize the potential pollution hazard posed by drainage into the Pennichuck water supply. Even with most development in this area being on public sewer, non-point discharges of fertilizers and other residential chemicals can pose a danger to water quality. It is thus especially important to maintain adequate buffer zones in these areas.

- Pennichuck Pond / Airport area: The large area of northwest Nashua between the Hollis town line, the Nashua Airport, and the B&M railroad tracks is characterized by either excessively well-drained sandy soils or poorly drained wetland soils. Wetlands crisscross the entire area, making much of the land area unbuildable. The wetland soils have a year-round high water table and poor stability. As is the case for the Tinker Road area, the excessively well-drained soils are located within the watershed of the Pennichuck water supply, and proper development and drainage techniques must be applied to prevent degradation of the water supply and associated wetlands. The City of Nashua recently adopted a water supply protection ordinance, the provisions of which will be discussed in the Water Resources section of this element (Part III).

- Southwest Corner: The southwest corner of the City is characterized by a wide variety of soil types and conditions. Wetland soils and areas with steep slopes crisscross this area, as they do in the northwest section of the City. As this is the City’s “final frontier” for significant residential growth, development pressure will intensify as the City approaches build-out, with greater quantities of marginal land likely to be proposed for development. The City should thus give extra scrutiny to development proposals throughout the southwest corner, and work to ensure that the most environmentally responsible development occur in this significant area.

C. Conservation and Preservation Goals and Objectives

GOAL: Protect the ecosystems, wildlife habitats, and scenic resources of Nashua from degradation, and enhance their ecological value whenever possible.

1. OBJECTIVE: WILDLIFE HABITAT, NATURAL ECOSYSTEMS AND WETLANDS

Protect the most significant wildlife habitats in the City, and link those areas, whenever possible, to provide wildlife corridors and contiguous areas of habitat.

Recommendations:
- Identify and preserve areas of wildlife habitat in the built-up areas of the City.
- Identify and map key wildlife habitats and corridors throughout the City, perhaps with the assistance of a
State College or University, or the Natural Resource Conservation Service.

c. Encourage the protection of contiguous areas of wildlife habitat to provide corridors for movement, perhaps through the creation of greenbelts.

d. Encourage the protection of wildlife habitats through improved land use regulations, land acquisition, conservation restrictions and the setting aside of such land in Cluster Developments and Planned Residential Developments (PRDs).

e. Examine the feasibility of creating river corridor greenways, to stretch along the Nashua and Merrimack Rivers, and Salmon Brook. If such greenways should prove feasible, in whole or in part, develop an implementation plan to make it so.

f. Examine the state of the City’s wetlands to determine if the updated wetland regulations (1990) are having their intended effect, and if they need some fine-tuning.

2. OBJECTIVE: OPEN SPACE, SCENIC AREAS AND PASSIVE RECREATION

The City should strive to provide all residents of the City with adequate and accessible recreational space at a variety of levels, from citywide and district parks to neighborhood playgrounds.

Recommendations:

a. The City, through zoning and/or land acquisition, should ensure that an adequate amount of open space is set aside for the enjoyment of citizens, as a relief from the built environment, and as wildlife habitat.

b. Protect and set-aside open space areas in each of the City’s quadrants, whenever possible, so as to provide relief from the built environment for all of Nashua’s citizens.

c. The City should strive to protect the remaining active agriculture and forest lands in the City, and assist landowners in safeguarding the economic viability of ongoing agricultural and forestry operations.

d. Preserve views along scenic roadways and into identified scenic areas.

e. Define appropriate uses, users and owners of structures on public lands.

f. Acquire additional open space areas. Emphasis should be placed on linking already existing parks, conservation areas and common open land into a network of open spaces that could be incorporated into a greenway or similar open space network.

g. Amend the Site Plan and Subdivision regulations to address the protection of existing vegetation (especially large trees) in development sites. Clear-cutting or near clear-cutting of vegetation should be prohibited.

h. Encourage the use of the Cluster and PRD styles of subdivision development, to enable greater amounts of open space in subdivisions.

i. Amend the Cluster and PRD sections of the Nashua Zoning Ordinance to increase the amount of open space required to be set aside and decrease the amount of wetlands that can qualify towards the total open space area.

j. Provide more areas for recreation, exercise or enjoying the outdoors by developing trails close to residential areas. More trails need to be developed in existing parks, along rivers, and in other natural and scenic areas.

k. Consider the development of a Nashua land trust to facilitate land acquisitions and conservation activities.

l. Consider designating the most rural and scenic roads in the City as official Scenic Roads per RSA 231:157.

m. Identify the most scenic areas in Nashua, and determine if the existing land-use regulatory structure is sufficient to protect their scenic attributes in the face of development. If not, develop additional land-use tools to protect these scenic resources for the enjoyment of all Nashua residents.

n. Aggressively seek out funding for trail development, trail maintenance, trail advocacy, and trail education. Funding may come from several federal and state sources, or corporate, non-profit, and other sources.

o. Develop or relocate utility lines underground whenever possible, for both new construction and roadway reconstruction, in order to preserve or enhance visual quality.

p. Provide adequate parking at the points of access to all parks and recreational areas.

q. Improve and expand park facilities at the district, community, and neighborhood levels in relation to the distribution and composition of the population.
r. Continue to improve and maintain existing City parks, such as Greeley Park, Mine Falls Park, and Yudicky Farm.
s. Obtain additional parkland, if possible, along Nashua’s waterways.
u. Develop criteria for the acquisition of additional parks and conservation areas, based on need, location, function, price and environmental features.
v. Support and encourage landowners to participate in the State’s Current Use Program.
w. Identify and make landowners aware of areas with high forestry or agricultural potential.

3. **OBJECTIVE: DOWNTOWN RIVERFRONT**

The City should take all necessary actions to ensure that its downtown riverfront is a dynamic and accessible social, cultural, educational, recreational, and economic resource for the City. A proactive approach would safeguard the riverfront as an inspiring and unifying element of downtown Nashua.

**Recommendations:**

a. Develop and implement an innovative plan for the Water Street Promenade Park.
b. Develop and promote a partnership with the property owners on the north bank of the Nashua River in order to secure conservation / recreation easements which will help to foster the use of this area for conservation, recreation and education.
c. Develop an aggressive grant writing initiative for the recreational, social and educational development of Nashua’s downtown riverfront.
d. Develop a corporate adopt-a-riverfront program.
e. Develop an educational program for Nashua’s riverfront so as to make community, education and civic organizations aware of the riverfront and to encourage them to program the riverfront in their planning and activities.

4. **OBJECTIVE: HISTORIC RESOURCES**

Preserve and protect the city’s historic resources; and review regulatory and other methods used to designate special districts and other potential historic properties

**Recommendations:**

a. Develop a mechanism to address the protection of historic landmarks and other historic structures and resources that lie outside of the Historic District.
b. Examine the extent of the City’s historic district and determine if its boundaries need to be modified.
c. Examine the historic district regulations to determine if they need to be modified or updated.
d. Develop a comprehensive database of the City’s historic resources, and determine the physical state of any surviving structures.
e. Develop appropriate signage for historic places and structures.

5. **OBJECTIVE: ACTIVE RECREATION AND SPORTS**

The City should strive to provide all residents of the City with adequate and accessible recreational space at a variety of levels, from citywide and district parks to neighborhood playgrounds.

**Recommendations:**

a. Implement the recommendations of the 1999 Nashua Recreation Master Plan.
b. Improve and expand park facilities at the district, community and neighborhood park levels in relation to
the distribution and composition of the population.

c. Identify and address any deficiencies that may exist in City-owned recreation facilities.

d. Balance the use of the City’s recreational facilities among all the citizens of Nashua.

e. Evaluate the role of organized adult sports in the future of the city’s recreational goals.

f. Define appropriate uses, users and owners of structures on public lands.

g. Continue to improve and maintain existing City-owned parks and recreation areas.

h. Implement and update the *Nashua Urban Trails Network and Nashua Trails Plan (1993).*

i. Require developers to set aside adequate amounts of accessible and usable recreational land within subdivisions and on large non-residential tracts, where advisable, through the subdivision and site plan approval processes.

j. Improve access, where advisable and needed, to existing City-owned parks and recreation areas.

k. Provide new and expanded programs at existing City parks and recreation areas that keep up with national recreation trends (i.e. rollerblading, mountain biking, fitness courses, etc…)

l. Address overuse and degradation of City Parks such as Mine Falls Park and Greeley Park by developing and implementing a recreation Master Plan for each park.

m. Ensure that public swimming facilities are easily accessible to the entire population of the City, and build additional pools where needed.

n. Consider developing additional park space and active recreational sites on the site of vacant buildings and lots in the downtown and urban center.

6. **OBJECTIVE: NASHUA RIVER AND TRIBUTARIES**

   Maintain and, if possible, enhance the water quality of and public access to the Nashua River, so that the River becomes a prime asset in Nashua’s quality of life.

   **Recommendations:**

   a. Consider adopting a local shoreline protection district to supplement the State’s Shoreline Protection Act.

   b. Consider developing a management plan for that portion of the Nashua River that flows within the City’s borders.

   c. Consider working cooperatively with the other cities and towns in the Nashua River watershed, perhaps by taking a more active role in the Nashua River Watershed Association.

   d. Address combined sewer overflows (CSOs) such that no untreated wastewater enters the River.

   e. Develop a Riverfront Park (*located off of Water Street on the south bank and Franklin Street on the north bank*) as a way of bringing citizens into contact with the River and highlighting its importance to the history and character of the City.

   f. Investigate and mitigate any adverse effects of groundwater quality on surface water quality.

7. **OBJECTIVE: MERRIMACK RIVER AND TRIBUTARIES**

   Maintain and, if possible, enhance the water quality of and public access to the Merrimack River, so that the River becomes a prime asset in Nashua’s quality of life.

   **Recommendations:**

   a. Take an active role in the Merrimack River Emergency Notification Network, in the event of a serious chemical spill or release into the River.

   b. Consider a local shoreline protection district to supplement the State’s Shoreline Protection Act.

   c. Develop a management plan for that portion of the Merrimack River that flows within the City’s borders.

   d. Work cooperatively with the other cities and towns in the Merrimack River watershed, perhaps by taking a more active role in the Merrimack River Watershed Council.

   e. Address combined sewer overflows (CSOs), such that no untreated wastewater enters the River.

   f. Consider developing a Salmon Brook greenway (greenbelt) as a way to safeguard this important tributary to the Merrimack River. Provisions for public access, such as canoe landings and hiking trails, should be
developed wherever possible and appropriate. In already developed areas, easements and protection restrictions could be developed.

8. OBJECTIVE: LAKES AND PONDS

Safeguard the water quality and wildlife habitat functions of Nashua’s lakes and ponds. Provide public access and water recreation opportunities where appropriate.

Recommendations:

a. Target Lovewells Pond as a high priority conservation area, due to its presently unspoiled nature. Now that the City has acquired the land surrounding Lovewells Pond for conservation, it should develop a management plan for this land that aims to protect water quality and wildlife habitat, while providing public access to this unique water resource.

b. Undertake an inventory of all permanent ponds in Nashua, noting their characteristics, and any threats to their shoreline and water quality.

c. Undertake an inventory of vernal pools, and develop a management plan to safeguard them from any water quality or development threats.

9. OBJECTIVE: WATERSHED MANAGEMENT

Take the broad watershed management approach to water quality protection.

Recommendations:

a. Identify all watershed and sub-watershed boundaries within the City limits and map them on the City’s GIS system.

b. Identify potential contamination sources (PCSs) within the watersheds. Develop a watershed management plan for the major watersheds (i.e. Nashua River, Pennichuck Brook, Salmon Brook, Cold Brook, Merrimack River).

c. Address combined sewer overflows (CSOs), such that no untreated wastewater enters the River.

10. OBJECTIVE: GROUNDWATER PROTECTION

Safeguard the quality and quantity of groundwater in the City, both as a source of drinking water and for other uses, such as fire protection.

Recommendations:

a. Identify and map all stratified drift aquifers within the City, noting which ones reach beyond the City’s boundaries (intermunicipal aquifers).

b. Develop an aquifer / groundwater protection plan for the areas where private wells are used as a drinking water supply, and also for those areas (particularly in northwestern Nashua), that may be suitable for public water supply wells.

c. Investigate and mitigate any adverse effects of groundwater quality on surface water quality.

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III. Recommendations for Existing Parks and Conservation Areas
Greeley Park:
   a. Where feasible, develop formal walking and biking trails to replace the informal trail network that currently exists along the Merrimack River.
   b. Develop a floodplain forest interpretive trail in the vicinity of the Merrimack River.

Mine Falls Park:
   a. Conduct a comprehensive natural resource and wildlife inventory to document the ecosystems and plant and animal species found in the Park. Such an inventory would provide baseline data on the Park’s natural features and biodiversity, which could be used as a “yardstick” in measuring potential adverse impacts of certain human activities in the Park.
   b. Once the natural resource and wildlife inventory is completed, a management plan for the Park should be developed. The management plan should seek to balance human use of the Park with its value as wildlife habitat.

Yudicky Farm and surroundings:
   a. Conduct a comprehensive natural resource and wildlife inventory to document the ecosystems and plant and animal species found in the Park. Such an inventory would provide baseline data on the Park’s natural features and biodiversity, which could be used as a “yardstick” in measuring potential adverse impacts of certain human activities in the Park.
   b. Once the natural resource and wildlife inventory is completed, a management plan for the Park should be developed. The management plan should seek to balance human use of the Park with its value as wildlife habitat.
   c. The City should hire a forestry consultant to determine if thinning certain forest stands in Yudicky Farm, Southwest Park and surroundings would improve wildlife habitat, recreational use, and the appearance of those areas. Yudicky Farm contains many young, dense white pine stands. The value of these stands for wildlife habitat and recreation may be improved by selective thinning.
   d. The City should conduct a natural resource / wildlife inventory and develop a management plan for the newly acquired land surrounding Lovewell’s Pond. Lovewell’s Pond is perhaps Nashua’s most unique natural area. If human use of this area is to increase, careful management is necessary.
   e. The City should explore the feasibility of an extensive trail system, which would connect the trails in Yudicky Farm to the recently acquired parcels in its vicinity. If such a trail system appears feasible, the City should seek to implement it in the near future.

Roby Park:
   a. An informal network of trails currently exists within the forested area of Roby Park. The City may want to ‘formalize” these trails through signage and trail improvements.

Horrigan Park:
   a. The City should consider purchasing the small, residentially-zoned property to the immediate west of Horrigan Park, which would extend the Park and allow for a small parking area. At present, official parking and access into the Park is lacking.

Other conservation areas:
   a. The City, perhaps through its Conservation Commission, should undertake a survey of all of the small, City-owned conservation areas scattered throughout Nashua. Many of these small conservation areas are relatively unknown and some may be suffering from misuse and degradation.
   b. Once these properties have been surveyed, a regular monitoring schedule should be set up, to ensure that the value of these properties in providing wildlife habitat and green space is not compromised.

Local Conservation Priorities
   a. The conservation priorities identified through the REPP process should be re-examined by a wide range of City boards, officials, and the public. If, after such review, it is determined that the list of local conservation priorities
needs modification or refinement, then the City should undertake such refinements before further work on the REPP is conducted.

b. The City should solicit input from the owners of land currently identified as priorities through the REPP process. If the list of priority parcels is modified from that appearing in this Plan, then those landowners should be contacted for their input as well. If effective conservation arrangements are to be worked out, it is imperative that the City work closely with the owners of land identified as priorities for conservation.

c. The City needs to refine the location of priority parcels along the Merrimack River (REPP priority # 4) before additional work can be undertaken on that particular project.

REGIONAL CONSERVATION PRIORITIES LOCATED IN NASHUA

The City should carefully consider the acquisition, or protection through conservation easements, of the properties identified as regional priorities through the REPP process. The parcels along the Nashua River, in particular, deserve careful consideration.

OTHER AREAS TO CONSIDER FOR PROTECTION

The City should consider the acquisition, or protection through conservation easements, of the “other” areas mentioned in this Plan. The protection of these areas would provide additional green space and wildlife habitat in developing areas of the City.

URBAN TRAILS

a. In addition to the trail network centered on Yudicky Farm, the City should consider an urban trail connection from Mine Falls Park (which would link up to the “Nashua Heritage Rail Trail”) to the Massachusetts line south of Groton Road. This trail would connect to the Ayer/Pepperell rail trail being developed in Massachusetts.

b. The City should consider building pedestrian / bicycle bridge(s) over the Nashua River in the general area shown on Map IV – 5. Such bridge(s) would greatly enhance bicycle and pedestrian options and public safety. Broad Street (Route 130) is much safer for pedestrians and bicyclists after its recent widening, and a bridge(s) over the River would allow for a loop trail system on both sides of the River. Elements of this loop trail would include the Downtown Connector, the trails in Mine Falls Park, the bike / pedestrian trail along the Broad Street Parkway, and on-street trails using West Hollis Street (west of Mine Falls Park) and Broad Street. Also, a pedestrian bridge is needed that crosses the river at the Hydro Dam, located behind the Public Works garage. This will link together the two high schools and their sports fields.

WATER RESOURCE PROTECTION RECOMMENDATIONS

a. In order to protect groundwater used as a drinking water source, the City should reconsider the minimum lot size of lots relying on individual septic systems. Recent studies have shown that in most situations a larger area is needed to adequately protect groundwater from contamination.

b. Train local inspectors to inspect for and enforce Best Management Practices (BMPs).

c. The City should strongly consider adopting a soil erosion and sediment control ordinance, which would comprehensively address many of the non-point sources of water quality degradation discussed in the Water Resources Protection Plan.

d. The City needs to take active steps to increase treatment and recharge as redevelopment takes place in the watershed.

e. The City needs to continue improvements to the storm water system along Route 101A, so that the storm water is treated before it is discharged.

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IV. NATURAL RESOURCE INVENTORY
A. Existing Conservation Areas

This section will examine natural areas and passive recreational opportunities found within existing City parkland and other protected areas. Existing parks and conservation areas form the backbone upon which further land acquisition and protection efforts should be based. It is also important to have a clear understanding of the natural values and ecological functions found within, and performed by, existing protected areas. Some of these values and functions include wildlife habitat, watershed and water quality protection, erosion control, and passive recreational opportunities.

1. City Parkland with Significant Natural Areas

There are several City parks that contain significant acreage of natural habitat. The active recreation (sports fields, informal playing fields, etc.) function of these parks is discussed in the Nashua Recreation Master Plan (1999). The largest City parks have significant acreage devoted to both active and passive recreation. Passive recreation includes walking, hiking, jogging, biking, bird watching, cross-country skiing, nature study, and other similar activities. For the most part, these activities depend on the presence of large natural areas within a community.

Nashua is fortunate in having several large parks that afford these opportunities. The Nashua Recreation Master Plan classifies City park lands into several categories based on their size and function. The largest parks, termed “City Parks”, are typically greater than 100 acres, are designed to serve both active and passive recreational uses, and contain the largest area of natural habitat. “District Parks”, which are typically from 10 – 50 acres in size, are geared more towards active recreation and sports fields, though some may contain natural areas suitable for passive recreation. In addition to these larger parks, the City has purchased smaller parcels exclusively for their wildlife habitat and natural values. These smaller areas are most “effective” as wildlife habitat and natural areas when they are contiguous to larger parks or bodies of water.

The following paragraphs will examine these City-owned lands from a wildlife habitat and passive recreational perspective.

The Nashua Recreation Master Plan defines a City Park as an area “intended to serve the populace of an entire city, addressing a broad range of recreational demands created by users of all ages, whether as individuals or in organized groups. Such parks should be at least 100 acres in size, large enough to incorporate facilities common to other smaller categories of parks, while adding to those facilities the benefits of open space and areas for passive recreational pursuits such as hiking and bicycling, picnicking, boating, and fishing.” There are three City Parks in Nashua: Greeley Park, Mine Falls Park, and Yudicky Farm.

a. Greeley Park

Greeley Park, at 210 acres, is the second-largest park in the City’s system, after Mine Falls Park. Greeley Park has often been referred to as the “crown jewel” of Nashua’s park system, for its well-manicured lawns, its city park-like appearance of many large shade trees, playgrounds, and sports fields. Greeley Park is a popular location for family picnicking and summer activities. It is the primary location for Nashua’s “Summer Fun” program of artistic and cultural activities.

What is perhaps less well known to many Nashua citizens is that Greeley Park also contains significant areas of natural habitat and areas for passive recreation. While the formal, “park” section of Greeley Park is centered on Concord Street (Route 3), the natural areas of the park are found at its eastern and western extremities. The westernmost section of the park is located off of Manchester Street. A bicycle / pedestrian trail connects this section of the park to the “formal” park area off of Concord Street. This trail traverses an area of mixed pine-hardwood forest that is good wildlife habitat. The other natural section of the park is found to the east of the playing fields on the eastern side of Concord Street. Below these fields is an area of transitional scrub vegetation that is good habitat for several bird species and small mammals. The Boston and Maine Railroad line traverses this area from south to north, and a more mature forested area is found to the east of the railroad tracks to the bank of the Merrimack River itself.
Several informal bicycle and pedestrian trails have been created in this area, which could serve as the backbone of a more formal trail network, should one be desired. The mature forest in this area is also good wildlife habitat, and several bird species requiring larger forest tracts, such as vireos, warblers, and thrushes, are likely nesters here.

A floodplain forest consisting of red maples, silver maples, cottonwoods, hickories, and other species found along rivers is well established in the immediate vicinity of the River. As this forest type is fairly rare in southern New Hampshire, it may be worthwhile for the City to develop an interpretive nature trail to educate the public on the value of these unique forests and their value in stabilizing riverbanks.

b. Mine Falls Park

At 325 acres, Mine Falls Park is the largest park in the City’s park system. Mine Falls Park is located close to the geographic center of the City, and is bisected by the F.E. Everett Turnpike, with the Nashua River forming its northern edge, and the Millpond and canal forming its southern edge. The area of the park north of Whipple Street was formerly an area of City sewage lagoons. In 1979, the sewage lagoons were filled, and redeveloped into playing fields. This area north of Whipple Street is the only section of the park devoted to active recreation and sports fields. There are presently six rectangular fields (soccer, football, lacrosse) and a softball field in this area. The remainder of Mine Falls Park is in a natural state and available for walking, bicycling, fishing, picnicking, nature study, and other “passive” recreational pursuits.

Mine Falls Park contains several miles of walking and biking trails, which generally follow the course of the Nashua River and the canal. These trails provide access to a variety of natural habitats, including pine woods, hemlock groves, young deciduous growth, floodplain forest and marshland. The eastern end of the Park features a large marsh in a cove of the Nashua River, providing excellent habitat for many wetland species. Both the Nashua Rail Trail and the Broad Street Parkway will provide a bicycle / pedestrian trail link into the Park, which will connect Mine Falls Park to the wider, developing Nashua trail network.

While Mine Falls Park provides valuable wildlife habitat for many species, it is starting to suffer the effects of overuse, which, if not addressed, could threaten the viability of wildlife habitat. The recent popularity of mountain biking has exacerbated the erosion present on many Park trails, and many new, informal trails have been developed in recent years. The proliferation of trails in a relatively small area may serve to fragment existing habitats, and lead to a loss of species over time. A comprehensive inventory of plant and animal species found in the Park should be undertaken in the near future to document the Park’s biodiversity. Such a study would permit a more accurate assessment of the effects of human activity in the Park, and may suggest ways in which adverse impacts could be minimized. The next logical step after a resource inventory would be development of a management plan for the Park, balancing human use of the Park with its wildlife habitat value.

The location of Mine Falls Park in the center of Nashua serves as relief from the built environment, an important function that the Park should be able to provide. Its central location will ensure that it remains popular, and as such it may be unrealistic to maintain large areas of the Park in a pristine, “wild” state. Nonetheless, with careful planning and management, it should be possible for Mine Falls Park to function both as a popular recreation destination and as a home to wildlife.

c. Yudicky Farm

Yudicky Farm, located in the City’s southwest corner, is the third largest City Park, at 120 acres. As is true for the two other City parks, Yudicky Farm has both active and passive recreational areas. Several sports fields are found immediately adjacent to Groton Road. The remainder of the Park consists of pine and mixed pine / hardwood forests and wetlands. Much of the woodland is relatively young, reflecting the agricultural use of the land in the early and middle decades of the century. The pine woodland is very dense in many locations, and thinning it would enhance its appearance and perhaps its value as wildlife habitat, as well.

The forests of Yudicky Farm provide good habitat for a variety of neo-tropical bird species (those which nest in North America but winter in the tropics). These species serve as good ecological indicators of forest health by virtue
of their requirement for large, healthy forest tracts with minimal human interference. On a June day in 1999, several neo-tropical species were heard singing within the Park’s forests, including wood thrush, veery thrush, scarlet tanager, red-eye vireo, and ovenbird. Since the spring migration was completed by then, these species were most likely nesting in the Park. It is recommended that a breeding bird survey be conducted as part of a comprehensive natural resource and wildlife inventory for the Park. The disappearance of these and other sensitive species from the Park would serve as a warning that its health is being adversely affected, perhaps allowing actions to be taken to prevent further loss of species.

Based on the results of a survey conducted for the Nashua Recreation Master Plan, Yudicky Farm turns out to be one of the least known or used City parks. Out of all survey respondents, only 1% said they use the park often, 7% said they use the park sometimes, and 92% said they never use the park. The relatively remote location of Yudicky Farm, compared to, say, Mine Falls Park, no doubt plays some role in its obscurity. As the southwest corner builds out, however, it will become a more popular recreation destination. The Urban Trail Alliance recently improved existing trails and developed new trails in the park under a National Recreational Trails Act grant. These trails are for non-motorized use only. Though Yudicky Farm is remote, it has proven to be a popular destination for motorized dirt bike and ATV users, which has resulted in trail erosion and damage to small streams. The city has since instituted a policy of no motorized use at Yudicky Farm that should help eliminate any further erosion.

As mentioned above, it is recommended that a comprehensive natural resource and wildlife inventory of Yudicky Farm be undertaken in the near future, which will serve to document the Park’s plant and animal species before the Park becomes “discovered” and subject to heavier use. Once the natural resource inventory is done, a management plan for the Park should be prepared. The management plan would seek to balance all uses of the Park, while ensuring that its value as wildlife habitat and green space in a developing part of the City is preserved, and enhanced if possible.

The City recently acquired 292 acres of land for recreation and conservation in the southwest quadrant (see Map IV - 3). The land was once part of the 1980’s “Halls Corner” development. Through this land acquisition, City ownership in the area increased from 180 acres (includes the Main Dunstable School property) to 471.5 acres. The recent creation of the new Southwest Park that includes and surrounds Yudicky Farm to the north along Gilson Road will include a total of approximately 245 acres. Some of the additional property in the Southwest Park will be developed for active recreation and sports fields. The remaining park area will be preserved for passive activities and natural resource protection. While approximately 30 acres of the City land north of Yudicky Farm is slated for sports field development. Passive recreational use / conservation is planed on the remainder of the land. In addition, the City obtained conservation land between Ridge Road and Buck Meadow Road, and in the vicinity of Lovewell’s Pond. This will provide a large upland buffer around Lovewell's Pond, safeguarding its water quality and value as wildlife habitat. Lovewell’s Pond is a classic example of property that should be considered for a conservation easement.

As can be seen from Map IV - 3, this land acquisition will form a large contiguous “loop” of City-owned land in the Southwest Quadrant. Large contiguous areas are much more valuable as wildlife habitat compared to small, scattered parcels. In addition, the loop of protected land is conducive to the creation of a regional trail network in the southwest quadrant. The trails being improved and developed at Yudicky Farm can serve as the core of a trail network that could be expanded to traverse all City properties in this area. It is recommended that the feasibility of such a trail network be explored in the near future, in conjunction with development of the enlarged Yudicky Park.

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2. District Parks

As defined in the *Nashua Recreation Master Plan*, District Parks are smaller than City Parks, and serve a smaller population base. Their primary function is to provide sports fields and playgrounds for a section of a city or town. Most of Nashua’s District Parks serve these functions, but only one of these, Roby Park, contains significant acreage of natural habitat and is thus of interest to this Natural Resources Inventory.

a. Roby Park

Roby Park is located in the southeastern corner of the City, adjacent to the Sky Meadow Planned Residential Development (PRD). At 57 acres, Roby Park is the largest of the “District” parks as classified by the *Nashua Recreation Master Plan*. Access into Roby Park is from Spit Brook Road, west of Exit 1 of the F.E. Everett Turnpike. Roby Park has one youth baseball field, one softball field, and playground equipment as its active recreation facilities. In winter, the hill on its western slope serves as a sledding hill, and the low ground below the parking area is flooded to provide an ice skating rink.

The majority of Roby Park’s area is forested, and a good deal of diversity is found within its approximately 50 forested acres. In the upland areas, white pine and mixed hardwood forests are found, whereas in the lowland areas, red maple dominated swamps are found. There are also stands of Eastern Hemlock on the slopes of the central ravine. As for Mine Falls Park and Yudicky Farm, it is recommended that a comprehensive natural resource and wildlife inventory be conducted for Roby Park.

An extensive trail network already exists at Roby Park. This trail network is informal and not blazed or marked as of yet. It may be worthwhile for the City, perhaps through the Urban Trails Alliance, to formalize these trails, as is currently being done at Yudicky Farm.

3. City-owned conservation land

There are several additional, relatively small, properties scattered throughout the City that have been acquired by or donated to the City for conservation purposes. These are listed in Table IV - 1. These smaller properties range in size from .31 acres (Laton Street), to 15.6 acres (Horrigan Park). Though small, these properties provide valuable habitat for species that don’t require large forest tracts. When located along streams and rivers, these properties provide habitat for aquatic species such as amphibians, ducks and other waterbirds, and small mammals. As can be seen from [Map IV - 4](#), many of these properties are located along Salmon Brook, providing urgently needed habitat along this stream that has experienced extensive residential encroachment over the last few decades.

Horrigan Park is located along the Nashua River, near the City’s western border with Hollis. This property is situated on a small peninsula, entirely within the 100-year floodplain, and is relatively unknown to most Nashua residents. The property can be accessed off of Skyline Drive. An informal trail network is found along the periphery of the property. There is an undeveloped residentially zoned property to the immediate west of the Park, which would be worthwhile to purchase in order to increase the extent of protected land along the Nashua River.
### CITY PARKS WITH SIGNIFICANT NATURAL AREAS AND SMALLER PARCELS OF PUBLIC OPEN SPACE

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**TOTAL ACRES: 910.22**

Note: These areas are keyed to Map IV-4.

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### 4. Other Protected Areas

In addition to the large and small City-owned park and conservation properties mentioned above, there are several other areas in both City and private ownership that provide open space and wildlife habitat functions. Several school properties contain small wooded areas that serve as habitat for small mammals and resident (year-round) birds, and as “rest stops” for migratory birds. The Nashua Wastewater Treatment Facility property contains a wooded area near the confluence of Salmon Brook and the Merrimack River. This floodplain forest contains several small ponds that serve as feeding areas and winter habitat for several waterfowl species. A small section of the New Hampshire Heritage Trail was developed here in 1994.

The City’s cemeteries also provide an open space function. Edgewood Cemetery, in particular, with its mature hardwoods, provides an oasis of green at the intersection of Amherst and Broad Streets.

In west-central Nashua, the Horse Pond Fish and Game Club and the Nashua Fish Hatchery constitute a relatively large, contiguous area of open space. The Nashua Country Club contains several wooded, natural areas that also provide wildlife habitat.

The above list should by no means be considered a 100% complete inventory of protected, natural areas in the City. It is recommended, however, that any natural area that is part of a city or privately owned facility be safeguarded from intrusion and degradation if at all possible. As the City builds out, these natural areas will come to serve an increasingly important function of providing green space and wildlife habitat in an urban environment. For these reasons, they deserve careful stewardship and respect.

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B. Remaining Natural Areas and Conservation Opportunities

This section will discuss areas that are not yet protected, but which by virtue of their location, habitat value, and other factors, should be considered for protection efforts.

1. Nashua’s Remaining Natural Areas

Outside of protected land in City parks and conservation areas, there are still several large undeveloped areas in Nashua. There are many smaller natural areas, often located between subdivisions, or situated at the rear of developed parcels. These remaining green spaces can serve both as relief from the built environment, and, especially when contiguous or linked, as wildlife corridors and “stop-overs” for migrating birds. This section will be concerned both with the larger open space areas, and with the most important smaller parcels deserving consideration for protection. A large part of the discussion will focus on the Regional Environmental Planning Program, a State-initiated program through which Nashua has identified priorities for conservation efforts.

Nashua’s largest remaining open space areas are found in its northwest and southwest quadrants. In the northwest quadrant, the area between the B&M railroad line (west of Route 101-A), the Pennichuck Brook system, Farley Road, and the Boire Field Airport, forms one of Nashua’s largest remaining open space areas. This area encompasses approximately 650 acres.

There are several hundred acres of undeveloped land in the southwest quadrant, mostly south of Gilson Road and west of Buck Meadow Road. The area between Conant Road, Buck Meadow Road, and Ridge Road is currently planned for a cluster-style development, with a “New England style” commercial Village Center as its centerpiece. An integral part of the plan is protection of the Cold Brook corridor, a tributary of Salmon Brook. As previously mentioned, the City recently acquired 292 acres of land in the southwest quadrant for recreation and conservation. While this preserves land of significant natural value, it is hoped that this recent acquisition will not preclude the City from pursuing other parcels in the future. As will be seen in the section below, there are several parcels in the southwest quadrant which are either contiguous to already protected land, or are of high ecological value. The following section will discuss these priority areas for future conservation efforts.

2. Priorities for Future Conservation Efforts

a. The Regional Environmental Planning Program (REPP)

The Regional Environmental Planning Program (REPP) was created by the New Hampshire Department of Environmental Services (NHDES) to develop a statewide inventory of resources in the following categories: water, land and forestry, historic and cultural, ecological, geological, and public recreational resources. The Land and Community Heritage Investment Program (LCHIP), proposed to be established and funded through Senate Bill 401, will use the REPP inventories to set priorities for future conservation and preservation efforts. The LCHIP is recommending that funding be made available for communities, non-profit agencies, and state agencies, through a competitive grant application process for the acquisition or protection (such as through conservation easements) of priority resources. Each of the state’s nine regional planning commissions received funding from NHDES for two years of environmental planning work. The objective for the first year was the identification of natural and cultural resources in each community. The objective for the second year was a refinement of priorities, with each community identifying their top five priority areas. The regional planning commissions are responsible for coordinating the efforts of each of their communities, with the local Conservation Commissions serving as the coordinating agencies at the local level.
For the first phase of work under the REPP, the regional planning commissions asked each community to rank each resource as high, medium, or low priority based on the following criteria:

*High Priority*: important high quality rare or unique resource; threatened by development, disturbance, or potential contamination; critical need for immediate protection; may disappear or be severely impacted if not preserved with the next 5 years; provides an important link between existing conservation areas.

*Medium Priority*: resource with a moderate level of threat from development, disturbance or potential contamination; adds to an existing parcel / network or conservation lands; would enhance protection of an already protected resource; moderate need for protection within the next 10 years.

*Low Priority*: no significant threat from development, disturbance or potential contamination; adds to an existing parcel / network of conservation land; long-term need for protection within the next 10 – 20 years.

The resources ranked were in seven categories: water resources; land and forestry resources; historic and cultural resources; ecological resources; geological and topographic resources; public facilities and services; and other.

For the second phase of work, the regional planning commissions asked each community to identify the top five parcels or areas for protection, based on the priority ranking system described above. Each community was asked to provide detailed information for their top five, including information on ownership, size of the parcel(s), resource type, what makes it significant, imminence of threat, and local support for protecting the resource. In addition to these local priorities, the regional planning commissions identified the top regional resources, those transcending municipal boundaries. These will be examined following discussion of the local priorities.

As previously mentioned, the Conservation Commissions are the lead agencies at the local level for the REPP process. The Nashua Conservation Commission held a series of meetings in the Spring of 1999 to develop their priority list, based on a comprehensive listing of known sites / resources in each of the 7 categories. The main features of the top five local priorities are briefly discussed below, followed by a similar discussion of the regional priority resources found within Nashua. The location of these sites is keyed and shown on Map IV - 5.

**Map IV-5 Current and Potential Conservation Land**

**Local Priorities**

1) The Pennichuck watershed land (R1) in northwestern Nashua was designated the number one conservation priority. The area totals approximately 650 acres. The entire area is within the watershed of Pennichuck Brook, Nashua’s primary surface water supply. The area is also extensively forested, with a network of wetlands crisscrossing the area. The area is likely to be of high ecological value in that it is largest unbroken, contiguous area of forest and wetland habitat within Nashua City limits.

This area west of the B&M railroad tracks and the Nashua Airport is zoned Park Industrial. Until recently, lack of access and remoteness precluded any development in this area. However, in 1997 approvals were granted to extend a road from Northwestern Boulevard across the railroad tracks to allow for the development of an office building. This and subsequent office, research and development and manufacturing uses have consumed approximately 100 acres in this park industrial area. The City is in the process of acquiring the remaining 300 acres of land in this area. This purchase will enable the City to protect this remaining land for conservation, passive recreation and limited active recreation use.

2) Three parcels of land in agricultural use immediately west of Yudicky Farm (R2) were designated the #
2 Conservation Priority. These parcels total 138 acres. This land west of Yudicky Farm is the largest contiguous area in Nashua’s southwest quadrant still in agricultural use. It contributes to the still largely rural nature of Nashua’s southwest corner. These parcels are contiguous to City-owned land at Yudicky Farm and land recently acquired by the City to the north and east.

The supply of land available for housing development in Nashua is dwindling rapidly, and the City’s recent acquisition of 292 acres of land north of Yudicky Farm and in the vicinity of Lovewell’s Pond further reduced the land available for future housing development, though it preserved valuable land for recreation and conservation. This recently acquired land was once part of the 1980’s anticipated “Hall’s Corner” Planned Residential Development. The setting aside of that land for recreation and conservation is likely to intensify development pressure on the few remaining large contiguous parcels in the City. The three parcels of land west of Yudicky Farm are now the largest remaining developable parcels in the southwest quadrant, and at current rates of development are likely to be developed within 5 – 10 years if not otherwise protected.

3) The # 3 priority is land along the Merrimack River suitable for trails and/or a boat launch facility. The exact location / parcels have yet to be determined, and as such this project requires further study. The Nashua Recreation Master Plan states: “With boating, canoeing, and fishing indicated in the survey as of substantial interest to Nashua’s adults as well as children, more access to the City’s surface waters is desirable. … A boat ramp should be provided on the Merrimack River somewhere near the Massachusetts border which will also allow canoes to be taken out after coming downstream from Greeley Park.” The survey also indicates that the number one recreational pursuit of Nashua residents is walking and hiking, and providing such trails along the Merrimack River will afford citizens access to the River and its scenic amenities.

4) The # 4 priority is the “Intervale” area (R4), located south of Intervale Street, on the north bank of the Nashua River. This area totals approximately 35 acres. The “Intervale” is located between the Nashua River and one of its coves, north of the eastern end of Mine Falls Park. Virtually the entire area is within the 100-year floodplain of the Nashua River. The intervale is one of the best examples of a floodplain forest remaining in Nashua. Its lower, eastern end contains a wide diversity of vegetation and as such is ideal wildlife habitat for many species. It is likely to be a prime resting and feeding area for songbirds during the spring and fall migrations. This area of the Intervale is unlikely ever to be developed, as it is entirely within the 100-year floodplain and much of it is wetland. However, the upper, western area, especially near the end of Intervale Street, could potentially be developed. This western area serves as the primary means of access into the area, and if developed, land access to the Intervale would be very difficult to provide. Several acres on this western end have recently been selectively logged. Most of the trees taken out were white pine, and this western area does not exhibit the same degree of biodiversity found further to the east. Logging of hardwoods to the east could have more serious ecological repercussions, as they serve as feeding and resting areas for a wide variety of migratory birds and other wildlife species.

Funding for the Land and Community Heritage Investment Program is expected to continue for the long term. It is recommended that the City continue to participate in the refinement of the REPP process, so that the City will be in a good position to act quickly. It is also important that all landowners of priority properties be contacted and informed of the REPP process and the Land and Community Heritage Commission. It is recommended that a natural resource inventory of the above properties be undertaken to determine their ecological value.

Regional Priorities

While the local Conservation Commissions were charged with identifying local conservation priorities, the regional planning commissions were charged with identifying regional conservation priorities. The Nashua Regional Planning Commission (NRPC) has identified three major regional priorities: the Nashua River corridor, the Merrimack River corridor, and the Pennichuck Brook watershed. For each, NRPC identified parcels to consider for protection, which may or may not overlap those chosen by the local Conservation Commissions. A brief overview of each regional priority will be given below, with an emphasis on parcels not identified in the top five at the local level.

1) Nashua River Corridor
The Nashua River flows northerly from its headwaters in central Massachusetts through Hollis and Nashua to its confluence with the Merrimack River. Within Nashua, there are three areas besides the Intervale (REPP priority # 5) that have been identified for future conservation efforts. Please see Map IV - 5 for the location of these properties.

The first property (a) is a small parcel to the immediate west of Horrigan Park that could serve to provide additional public access to this little known conservation area. The second area (b) consists of 4 small properties totaling 7 acres adjacent to Heidi Lane off of West Hollis Street (Route 111). These thin, irregularly shaped parcels all have access to the Nashua River, and are adjacent to a densely populated section of Nashua. The third area (c) is a 22-acre parcel adjacent to the DPW site on Riverside Drive, to the west of the southern portion of Mine Falls Park, where the new rectangular stadium is being built. This property would also be a good alternative location for a boat launch or boat house. The current boat launch is located near the Nashua River hydroelectric dam, the access road for which cuts through the DPW property. This property was recently acquired by the City for development of an athletic field/stadium and for improving access to Mine Falls Park.

2) Merrimack River Corridor

The Merrimack River corridor is the most significant surface water resource in the NRPC region. The shoreline of the River is remarkably undeveloped for an urban area, however development pressures along the River are increasing. Ironically, the increased desirability of riverfront property can be attributed to the clean-up efforts of the last few decades. As seen in the REPP discussion above, the City has identified increased River access and trails along the River as one of its top priorities. The Beazer East site in northeastern Nashua is the # 2 REPP priority.

3) Pennichuck Brook Watershed

Pennichuck Brook feeds a chain of ponds that supply drinking water to Nashua, Merrimack, Amherst, Milford, and Hollis under the management of Pennichuck Water Works. The extensive watershed supplies the chain ponds with water through both surface flow (runoff) and base flow (groundwater infiltration). Nashua’s # 1 REPP priority is a large section of watershed land in northwest Nashua. The Pennichuck Brook watershed, as well as the Nashua and Merrimack Rivers, will be discussed in greater detail in part III of this element, the Water Resources Management and Protection Plan.

b. Other Areas Deserving Consideration for Protection

There are several smaller parcels / areas that should be considered for protection, based either on their resource value, or on their value in connecting or extending existing protected land. Parcels or areas previously discussed will not be mentioned again. The location of these parcels is shown on Map IV – 5, with the letter designations given in parentheses below.

The first area, which may be suitable for a conservation easement, is on the shoreline of the Nashua River between Brenda Street and Xenia Street (d). This area is southeast of Horrigan Park, on the southern side of the Nashua River, and its protection would add to the protected, natural shoreline for this stretch of River. This parcel has its frontage on West Hollis Street, across from the St. Louis De Gonzague cemetery. The entire parcel is about 12 acres. It is recommended that a conservation easement be obtained along the Nashua River frontage. The width of the protected area should be determined after careful study by a qualified expert.

The second area (e) is found at the confluence of the Pennichuck Brook and the Merrimack River, just to the west of the B&M railroad tracks. It is located within the proposed Circumferential Highway area that crosses the Merrimack River on its way to the F.E. Everett Turnpike. This area may be suitable as a “mitigation site” for the Circumferential Highway.
Another area of special concern is a vernal pool (or pools) identified by the New Hampshire Natural Heritage Inventory program in the area east of Buck Meadow Road and just north of Ridge Road (f), another vernal pool has been identified in the Maplewood Subdivision. Vernal pools are generally upland areas that fill with water for a short period in the spring following snowmelt and early spring rains. They serve as breeding habitat for a variety of amphibian species. Many amphibian species are declining due to the loss of suitable habitat. It is recommended that when development is proposed for this area, that the location of the vernal pools be identified and flagged, and that both the pools and a suitable buffer zone around them be designated as off-limits for development. The vernal pools and buffer zone should be permanently protected, perhaps through a conservation easement.

Another fairly large, undeveloped parcel is located in the southwest quadrant immediately to the east of Salmon Brook where it crosses Ridge Road. This 25-acre parcel (g) is currently owned by the Boy Scouts of America and is used as a summer camp (Camp Doucette). Keeping this land in its present use would be desirable from an environmental and open space standpoint, as this area of Ridge Road provides a break in developed land between the PRD land to the east (Meadowview Estates) and the residential subdivisions to the west. The entire western edge of this property is bordered by Salmon Brook, and keeping the land in a natural, forested state would help to protect both water quality and wildlife habitat in the lower Salmon Brook corridor.

In the northwest quadrant, off of Coburn Avenue, is Sullivan Farm (h), the last remaining active orchard / farmstand in Nashua. The entire property comprises 43.4 acres. If this property is not protected, either through direct purchase or another mechanism, such as a conservation easement, it is likely to be developed, as it has few constraints and is in a developing part of the City.

It is recommended that the City consider purchasing some of the above-mentioned “other” areas, especially those adjacent to existing parkland. The purchase of such additional parcels would enlarge existing parks, and provide additional buffer areas from nearby residential and/or commercial development.

**Scenic Area Preservation**

There are several scenic areas in Nashua, particularly in the southwest quadrant, deserving of protection. As the southwest quadrant develops, some loss of rural character is unavoidable. However, careful planning can help to preserve the scenic roadside views that most people associate with “rural character.” The following list of scenic areas is by no means a comprehensive inventory, but is intended as a starting off point for a discussion of how best to preserve these areas. The general location of these areas is shown on Map IV - 5.

1) **The northern side of Ridge Road between Quinton Drive and Buck Meadow Road**
   This area, particularly the open field with farm buildings at the intersection of Buck Meadow Road, has the quintessential “rural” look. In the event that the large parcel(s) encompassed by Ridge Road, Buck Meadow Road, and Cold Brook is proposed for development, efforts should be taken to preserve the land along Ridge and Buck Meadow Roads, perhaps through a conservation easement. The depth of the easement should be sufficient to screen most of the development from view, and preserve the open field and farm buildings along the road.

2) **The northern side of Ridge Road between Yudicky Farm and Woodbury Drive**
   This area has been described in the section on the Regional Environmental Planning Program. The site was identified by the Nashua Conservation Commission as their # 2 conservation priority. In the event that this land cannot be preserved from development, it is recommended that at a minimum that the frontage of these parcels be preserved, to a sufficient depth to screen development from view.

3) **The land associated with and in the vicinity of Sullivan Farm on Coburn Avenue**
   This area has just been discussed above. Again, in the event that this land cannot be preserved from development, efforts should be made to protect as much of the frontage area as possible.
3. Future Urban Trails and Non-Motorized Connections

In 1993 / 1994, the City prepared the *Nashua Urban Trails Network* and the *Nashua Trails Plan*, which was adopted as a component of the Master Plan Update in 1996. The *Trails Plan* documents existing and proposed on-street and off-street “urban trails,” which are shown on Map IV - 6. The goals of the *Nashua Urban Trails Network* are:

- The trails contribute to Nashua’s transportation network by stressing alternatives to the automobile.
- The trails offer safety for the urban trail user.
- The trails provide recreational opportunities for the urban trail user.

On-street trails consist of sidewalks, bike lanes, and crosswalks. Off-street trails consist of the more typical type of trail: wooded paths, hiking trails, equestrian trails, and bike trails. The Urban Trails Alliance (UTA), a sub-committee of the Aldermanic Committee on Infrastructure, is the principal organization in the City responsible for developing urban trails. Since the adoption of the *Trails Plan*, the UTA has developed several off-road trails in Nashua, and has been an advocate of sidewalks, bike lanes and other on-street trails. Details and recommendations of the *Trails Plan* will not be restated here, the reader is asked to refer to the original document. One recommendation that will be made here is that the 1994 *Trails Plan* be revised to reflect current conditions in the City, and describe and map the trails that have been developed over the last several years. This section of the Natural Resources element will identify possible trails and connections that could be further explored through an update of the *Trails Plan*.

The land recently acquired by the City, centered on Yudicky Farm, would be ideal for the creation of an off-road trails network. The UTA is currently developing trails within Yudicky Farm, and new trails could be made to connect to Lovewell’s Pond, the land north of Yudicky Farm, the Main Dunstable School, and trails to be developed in the Flexible Use District subdivision to the east of Buck Meadow Road. Another trail project that should be explored is a connection between Mine Falls Park and the Ayer / Pepperell Rail Trail, a Massachusetts trail which meets Nashua in the far southwest corner near the Nashua River. The City is in the process of purchasing the Nashua portion up to Groton Road. Due to extensive development in the southwest quadrant over the last several decades, such a trail would probably require an extensive on-road component. Nonetheless, it could serve as both a recreational trail and as a non-motorized transportation route, linking those living in the southwest quadrant to employment opportunities in downtown Nashua and the Millyard.

One of the major barriers to all forms of transportation in the City is the Nashua River, which bisects the entire City from west to east. There are several locations west of the Turnpike where it may be possible to span the River with pedestrian / bicycle bridges. The first bridge (1), adjacent to the Hollis town line, would connect the northern tip of Horrigan Park to land owned by the Hollis Crossing condominium complex. The second bridge (2) would connect the City-owned Tilton Road boat ramp land to the presently undeveloped parcel west of Heidi Lane. This property was previously discussed as one suitable for a conservation easement along the River. A pedestrian bridge could go over the Mine Falls damn connecting the two high schools. Though these two projects may seem inherently difficult, the City may want to pursue them as part of a congestion mitigation air quality (CMAC) grant or another program.
under the TEA-21 umbrella. Development of these bridges and their trail connections would require negotiations with private landowners, but that should not deter the City going ahead, as many trails in the State and elsewhere are located on private land. Given Nashua’s close to build-out situation at the turn of the century, most future trails of any length will require easements and other agreements with private landowners.

V. WATER RESOURCES MANAGEMENT AND PROTECTION PLAN

A. Water Resources Inventory

The word Nashua means “land between the rivers” and, as the name indicates, Nashua is rich in water resources. This section of the Conservation and Preservation Element will focus on the City’s water resources; its characteristics; potential threats to water quality; and what can be done to preserve, and when possible, enhance water quality and functional attributes. This section of the Master Plan is intended to supplement, but not replace, comprehensive studies such as the Merrimack River Corridor Management Plan (1989); the Merrimack River Initiative Management Plan (1997); the 1995 to 2020 Vision for the Nashua River Watershed (1995); Watershed Connections (1997); and the Pennichuck Water Works Management Plan (1998). Where appropriate, the most pertinent sections of these reports and Plans will be reproduced or referenced in this chapter. The above-mentioned reports are on file at the Nashua Community Development and the Nashua Regional Planning Commission offices.

1. Surface Water Resources

Surface water resources include lakes, ponds, streams, rivers, and wetlands. This section of the Master Plan will briefly examine Nashua’s surface water resources, with an emphasis on water quality, threats to water quality, and what can be done to safeguard and enhance water quality. In this endeavor, it has been discovered that a comprehensive approach, based on watersheds, is most appropriate. Therefore, this discussion will start with a description of the major watersheds in Nashua, followed by a discussion of specific water resources within the main watersheds. This section of the report will mainly consist of an inventory of the water resources, their recent history, and current water quality issues. Section B., Management and Protection Plan for Water Resources, will report on ongoing and recommended action steps to protect water supply and water quality for each of the major water resources discussed.

a. Watersheds

A watershed can be simply defined as a geographic area consisting of all land that drains to a particular body of water. Watersheds vary in size, shape, and complexity. Watersheds can be delineated by identifying the highest topographic points in a given area, and then determining the direction in which water will flow from these high points. All water bodies including rivers, streams, lakes, ponds, and wetlands have their respective watersheds. Major rivers, such as the Merrimack River, are comprised of not only an overall watershed, but many sub-watersheds for each tributary that flows into the main river. For example, the Nashua River, a tributary of the Merrimack River, has its own watershed which is but one of several sub-watersheds comprising the entire Merrimack River watershed.

A watershed approach to water supply and water quality protection makes the most sense because it attempts comprehensive management of all factors within the watershed that could impact the quality and quantity of water reaching the pertinent water body. In recent years, it has become increasingly apparent that land-uses within watersheds have a major impact on recipient water bodies. A watershed approach to water supply and water quality protection will be discussed in greater depth in Part B of this section, Management and Protection Plan for Water Resources. In Nashua, there are four major watersheds:
• the Merrimack River watershed,
• the Nashua River watershed,
• the Pennichuck Brook watershed, and
• the Salmon Brook watershed.

Each of these major watersheds contains minor sub-watersheds, both within and outside of Nashua, which contribute to the major watersheds, but this element of the Master Plan Update will concern itself only with the four watersheds mentioned above. Significant tributary streams within Nashua that contribute to the above watersheds will be mentioned where pertinent. Brief descriptions and facts about each watershed will be given below. This section of the report will consist of an inventory of the water resources, their recent history, and current water quality issues. Section B., Management and Protection Plan for Water Resources, will report on ongoing and recommended action steps to protect water supply and water quality for each of the major water resources. The location of each of the watersheds discussed below can be seen on the Map IV-7.

Map IV-7 Water Resources

Merrimack River Watershed

The Merrimack River watershed extends from the White Mountains of northern New Hampshire southward to the northeastern corner of Massachusetts. The Merrimack’s 5,010 square mile watershed is the fourth largest in New England, with 76% (3,810 square miles) in New Hampshire and the remainder in northeastern Massachusetts. The Merrimack River itself is formed by the convergence of the Pemigewasset and Winnipesaukee Rivers in Franklin, New Hampshire. From this convergence point, the Merrimack River follows a 115 mile route past the cities of Concord, Manchester, and Nashua, New Hampshire, and the Lowell / Lawrence area in Massachusetts to the ocean at Newburyport.

According to the 1990 census, approximately 1,920,000 people live in the 203 municipalities within the watershed, a 28% increase over the 1980 population. As with most large rivers, the Merrimack River has several major tributaries, each with its own watershed. In Nashua, the major tributaries and sub-watersheds are the Nashua River, Pennichuck Brook and Salmon Brook, each of which will be discussed below. The entire City of Nashua is thus within the greater Merrimack River watershed, though only a small part of the City is within the “main stem” watershed. Of the City’s 19,770 acres, 3,034 are within the mainstem watershed, with the remainder being in the Nashua River, Pennichuck Brook, or Salmon Brook watersheds.

There are two main documents that address watershed-wide issues for the Merrimack River. The first, prepared in 1989 by the Nashua Regional Planning Commission, is the Merrimack River Corridor Management Plan. The second, prepared in 1997 by the Merrimack River Initiative, is called Watershed Connections. Both of these reports are on file at the Community Development Division office in the Nashua City Hall, and at the Nashua Regional Planning Commission. It is the recommendation of this Master Plan Update that the goals, objectives and recommended actions found in these reports, as they pertain to Nashua, be reviewed, and, if found pertinent, become the official policy of the City as far as watershed management issues are concerned.

Nashua River Watershed

The Nashua River watershed encompasses an area of 538 square miles in north-central Massachusetts and southern New Hampshire. As of the 1990 Census, approximately 240,000 people lived within the watershed. As mentioned above, the Nashua River is a major tributary of the Merrimack River. At 7,598 acres, the Nashua River
watershed has the largest area of any watershed within the Nashua city limits. The Nashua River originates in Lancaster, Massachusetts, and flows northward from there, against the grain of its watershed and in opposition to the flow of most of its major tributaries. This causes the flow of the Nashua River to be slower than that of its tributaries, and this slower flow makes it more vulnerable to oxygen depletion from pollution.

The Nashua River Watershed Association has produced a document titled *1995 to 2020 Vision for the Nashua River Watershed*. This 1995 document constitutes a watershed management plan, and includes “Recommended Actions for Nashua to Consider for Achieving the Goals of the 1995 to 2020 Vision for the Nashua River Watershed.” These recommended actions will be listed and discussed in Part B of this section, Management and Protection Plan for Water Resources.

**Pennichuck Brook Watershed**

The Pennichuck Brook watershed is a relatively minor sub-watershed of the Merrimack River. It encompasses an area of 17,984 acres, all of which is found in the greater Nashua region. The majority of the watershed is located in Hollis, Nashua, and Merrimack. Though it is a relatively small watershed, it is very important to Nashua, as the Pennichuck Brook system is the City’s primary source of drinking water.

The Pennichuck Brook watershed comprises 3,702 acres in Nashua, which is 20.6% of the total watershed area. As can be seen from Map IV - 7, the Pennichuck watershed amounts to about 20% of the City’s area. Pennichuck Water Work’s *Watershed Management Plan* (1998) documents how extensive residential, commercial, and industrial development in Nashua and elsewhere in the watershed has degraded the water quality of the Pennichuck Brook system, largely due to non-point source pollution (urban runoff) from impervious surfaces such as roads and parking lots. Impervious surfaces prevent the natural recharge of groundwater, and increase the amount of unfiltered stormwater reaching the ponds and brook. This urban runoff carries pollutants and excess nutrients, usually in the form of phosphorous, to water bodies, which accelerates eutrophication. Total imperviousness of the *entire* watershed is estimated at 15%, and studies indicate that water quality degradation begins to occur at approximately 10% imperviousness. In Nashua, the Boire Field Brook subwatershed, which includes the Nashua Airport and much of the Route 101-A commercial corridor, is estimated to be 36% impervious. The land uses with the highest degree of impervious cover are industrial, commercial, and high density (less than ½ acre lots) residential. In Nashua, 11% of the land abutting the ponds and streams is zoned high density residential, 36% is zoned industrial, and 6% is zoned commercial. In order to minimize future water quality degradation, it is vital that land use decisions in the watershed recognize the connection between land use and water quality.

In order to address the degradation of water quality in the Pennichuck pond system, the City recently adopted a Water Supply Protection District. The provisions of this ordinance, which address many of the problems listed above, will be discussed in Part B. Management and Protection Plan for Water Resources. The City needs to take active steps to increase treatment and recharge as redevelopment takes place in the watershed. Furthermore, the City needs to continue improvements to the storm water system along Route 101A, so that the stormwater is treated before it is discharged.

**Salmon Brook Watershed**

Like the Pennichuck Brook watershed, the Salmon Brook watershed is a relatively small sub-watershed of the Merrimack River. Salmon Brook flows from Massapog Pond in Dunstable, and enters Nashua to the west of Pinebrook Road. It then flows northeasterly to its confluence with the Merrimack River near the Nashua Wastewater Treatment Facility. The Salmon Brook watershed comprises 5,435 acres in Nashua, second in area only to the Nashua River watershed within the city limits. Within Nashua, the Salmon Brook watershed includes rural, suburban, and urban areas. As will be seen in the discussion below on threats to water quality, both suburban and urban areas have a great potential of contributing runoff (non-point) type pollution to water bodies. The fertilizers used on suburban lawns, and stormwater runoff from parking lots in urban areas, in particular, pose great threats to water quality. As much of the development along Salmon Brook in Nashua occurred prior to the adoption of wetland regulations in the City, which require minimum setbacks from wetlands and waterbodies, suburban lawns and impervious areas encroach upon Salmon Brook for much of its length. Cold Brook is a subwatershed of Salmon Brook, with Lovewell’s Pond as
b. Rivers and Streams

As mentioned in the watershed descriptions above, the major rivers and streams that flow within and through Nashua are the Merrimack River, the Nashua River, Pennichuck Brook, and Salmon Brook. In addition, there are several smaller tributary streams to each of the above major rivers and streams found within the City. Table IV - 2 lists some key facts concerning the major and most significant minor streams in Nashua.

The two most significant rivers, of course, are the Nashua and Merrimack Rivers. As can be seen from the water resources map, the Nashua River bisects the City from west to east. Nashua is one of the historic mill cities, and many mills were sited along the riverbanks in the 19th and early 20th centuries. The River was utilized for waterpower, and, unfortunately, for waste disposal was well. Remains of the original canal system can still be seen in Mine Falls Park. There are many excellent guides to the history of Nashua and its rivers, which the interested reader can consult. The primary focus of this section of the Master Plan is on water quality issues. In order to understand these, a brief historical overview may be helpful.

According to the 1995 to 2020 Vision for the Nashua River Watershed:

“The low point for water quality in the Nashua River came in the mid-1960’s. The River, weakened by drought, could not carry away all the waste dumped into it. The ponds behind the River’s dams became festering lagoons where sewage worms thrived. The river’s stinking waters barely flowed, discolored by paper mill dyes and choked with municipal sewage and mill waste. The Nashua River was classified “U,” unfit to transport sewage, because it already was burdened with far more than it could carry away.”

Thankfully, today the situation is much improved, although the River still faces threats, and when it comes to water quality, there is no time for complacency. Through local clean-up efforts, and, most especially the effects of the Clean Water Act of 1972, the River began a slow recovery. The Clean Water Act prohibits the gross polluting of surface and ground waters through the introduction of point sources of pollution, defined as “any discernable, confined and discrete conveyance.” This includes such pollution sources as pipes, ditches, channels, wells, animal feedlots, or containers from which pollutants can be discharged. The Act requires all point source discharges to obtain a permit under the National Pollutant Discharge Elimination System (NPDES). The Act specifically establishes an allowable level of pollution that can be contained in the facility’s discharge. In addition to establishing the NPDES program, the Act also provided funding for grants to be used in constructing municipal wastewater treatment plants to treat sewage prior to discharge. By greatly reducing the discharge of raw sewage, the Act has had a significant impact on water quality. The Act does not address non-point pollution, however, which has replaced point source pollution as the greatest remaining threat to water quality. Non-point sources of pollution are more difficult to identify, and, as the term implies, can have more than one point of origin. Sources of non-point pollution included runoff from agricultural land, septic system effluent, and runoff from roads, parking lots and other impervious areas. The characteristics of non-point pollution will be discussed in greater detail in Section 3.

The Nashua and Merrimack Rivers greatly benefited from the Act, as riverbank communities installed wastewater treatment plants and undertook other measures to improve water quality. Today, both the Nashua and Merrimack Rivers generally meet Class B water standards in most stretches.

In order to establish a set of standards for water quality, the EPA developed a water classification system. There are three primary water classifications: A, B, and C.

Class A is designated for use as a public water supply; Class B is designated for the protection and propagation of fish, other aquatic life, and wildlife, and for primary contact recreation (swimming) and secondary contact recreation (boating). Class B is often termed “fishable and swimmable.” Class C is designated as suitable for the protection and propagation of fish and wildlife, and for secondary contact recreation (boating). Class C waters are generally not
recommended for swimming, however.

### TABLE IV – 2

**RIVERS AND STREAMS WITHIN NASHUA**

<table>
<thead>
<tr>
<th>River or Stream</th>
<th>Water Quality Classification</th>
<th>Length within Nashua</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merrimack River</td>
<td>B</td>
<td>7.7</td>
</tr>
<tr>
<td>Nashua River</td>
<td>B</td>
<td>8.2</td>
</tr>
<tr>
<td>Salmon Brook</td>
<td>B</td>
<td>6.4</td>
</tr>
<tr>
<td>Pennichuck Brook</td>
<td>A / B</td>
<td>7.9</td>
</tr>
<tr>
<td>Spit Brook</td>
<td>B</td>
<td>1.1</td>
</tr>
<tr>
<td>Cold Brook</td>
<td>B</td>
<td>1.5</td>
</tr>
<tr>
<td>Hassel Brook</td>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td>Hale Brook</td>
<td>B</td>
<td>1.8</td>
</tr>
<tr>
<td>Lyle Reed Brook</td>
<td>B</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Notes: Class A designates water bodies suitable for use as public drinking water supplies. Class B designates water bodies that are “fishable and swimmable.” With treatment, Class B water bodies can also be used for water supply purposes.


c. **Lakes and Ponds**

In comparison to its wealth of rivers and streams, Nashua contains very few standing water bodies of any appreciable size. There are no large natural lakes within Nashua, but the City does contain several small ponds, which are listed in Table IV – 3. The table does not list the impoundments of the Pennichuck Brook system, which, for the purposes of this section, are considered part of Pennichuck Brook.

Of the remaining ponds, the most well known in Nashua are Round Pond and Lovewell’s Pond. Though both are approximately the same size and shape, they differ significantly in character. Round Pond, located off of Amherst Street in the City’s northwest quadrant, can best be described as an urban pond. It is surrounded on three sides by development, and its vegetated buffer is relatively thin. Lovewell’s Pond, on the other hand, is located in the rural southwest corner of Nashua, and its entire shoreline remains vegetated and undeveloped. Lovewell’s Pond recently benefited from the acquisition of conservation and recreation land in the southwest quadrant, which will preclude any development of the upland area east of the pond. As an attractive, but yet undeveloped water body, Lovewell’s Pond is a surprising rarity in Nashua, and indeed in most of southern New Hampshire. The New Hampshire Natural Heritage Inventory mentions that there is a rare bog ecosystem at Lovewell’s Pond. The floating bog mat covers 1-2 acres. This type of plant community is said to be critically imperiled in the State due to extreme rarity or vulnerability.

Other well-known ponds in Nashua include Horse Pond, on the Horse Pond Fish and Game property, Sandy Pond off of Lake Street, and the Mill Pond in Mine Falls Park, which is an impoundment of the Nashua River canal.

### TABLE IV – 3

**LAKES AND PONDS WITHIN NASHUA**

<table>
<thead>
<tr>
<th>Lake or Pond</th>
<th>Size (acres)</th>
<th>Location in Nashua (by quadrant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round Pond</td>
<td>13.4</td>
<td>NW</td>
</tr>
<tr>
<td>Lovewell’s Pond</td>
<td>11.9</td>
<td>SW</td>
</tr>
<tr>
<td>Horse Pond</td>
<td>5.3</td>
<td>NW</td>
</tr>
<tr>
<td>Sandy Pond</td>
<td>5.1</td>
<td>SE</td>
</tr>
</tbody>
</table>
d. Wetlands

Wetlands can be defined using several different characteristics. The State of New Hampshire Wetlands Board defines wetlands as: “...those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil condition.” This type of vegetation is termed “hydrophytic” vegetation. Due to their saturated state, wetland soils are often termed either “very poorly drained” or “poorly drained” soils. Many communities in New Hampshire base their wetland definitions on soil drainage classification alone, since in disturbed areas hydrophytic vegetation may have been removed or destroyed.

The City uses a threefold definition of wetlands in its wetlands regulations. Article VIII., Section 16-572 of the Nashua Revised Ordinances defines wetlands as: “Wetlands are those areas which possess three essential characteristics: 1. Hydrophytic vegetation, 2. Hydric soils, and 3. Wetland hydrology. Wetlands generally include swamps, bogs, marshes, and areas saturated with water at or near the surface for extended periods during the year.” The City then goes on to classify three categories of wetlands: primary, critical, and other. Each class of wetland has a different buffer zone around it within which land uses are severely restricted according to the provisions of the local wetland regulations. These buffer zones and the main features of the wetlands ordinance will be described shortly.

Primary wetlands are those areas designated as “prime wetlands” in accordance with RSA 483-A:7 (State Wetland Law). It should be noted that several critical wetlands also fall under the primary wetland designation. Examples include the Merrimack River, the Nashua River, Salmon Brook, and Pennichuck Brook. When a wetland falls into several classifications, the regulations pertinent to the most restrictive apply. Critical wetlands include the following waterbodies, watercourses, and their associated wetlands:

Nashua River, Nashua Canal, Merrimack River, Pennichuck Brook, Salmon Brook, Round Pond, Lovewell’s Pond, Bowers Pond, Harris Brook, Hales Brook, Horse Pond, Spectacle Brook, Trout Brook, Colerain Brook, Nashua cove, Coburn Pond, Supply Pond, Holts Pond, Hassell Brook, Old Maid’s Brook, Muddy Brook, Harris Brook, Cold Brook, Spit Brook, and Sandy Pond.

“Other wetlands” are those areas not specifically defined as primary or critical wetlands, but which possess the characteristics described under the threefold wetland definition. The most pertinent sections of the Nashua Revised Ordinances are reviewed below. The location of the City’s primary wetlands is shown on the Map IV – 7, Water Resources. Critical wetlands, other than those sharing primary wetland designation, are not shown on the map since many of them are small streams that will not show up at the scale provided. Areas of very poorly drained and poorly drained soil are shown on Map IV – 8. These soil types are often indicative of wetlands.

The greatest buffer zone for any wetland in Nashua is 75 feet for a primary wetland. Critical wetlands have a 40-foot buffer, and “other” wetlands have a 20-foot buffer. As the wetland ordinance points out, disturbance of the buffer area and, in some cases, the wetlands themselves, is permitted provided the Zoning Board of Adjustment
determines that the proposed use meets the six (6) criteria listed in Sec. 16-575 (c) of the Nashua Revised Ordinances. The Zoning Administrator reviews all proposed uses with one hundred (100) feet of wetlands, according to part (d) of the review standards. Yet given the importance of wetlands and the historic loss of significant wetlands, the question arises whether the Nashua Wetland Ordinance is meeting its intended purpose of protecting the City’s remaining wetland areas.

For example, many other states require a 100-foot buffer zone around all significant wetlands (often defined as those over one acre in size and which are hydrologically connected to lakes, ponds, rivers and streams). The 1995 to 2020 Vision for the Nashua River Watershed reproduces a table derived from the 1994 Riparian Buffer Zones Conference, which summarizes the benefits derived from buffer zones of varying widths, from 5 to 600 feet. Each distance is evaluated on the basis of two criteria, its effectiveness at pollutant removal, and its value as wildlife habitat. A buffer zone of 10 feet, for example, is said to remove approximately 60% of sediment and pollutants, but minimally protects stream habitat, is of poor wildlife habitat value, and is only useful for temporary activities of wildlife. This distance is mentioned because many of Nashua’s smaller streams, including the urbanized areas of Salmon Brook, have buffers of this width or slightly wider. However, development in these areas occurred prior to the City’s adoption of wetland regulations. Nonetheless, this encroachment represents a lost opportunity, particularly in the case of Salmon Brook, for a greenway linking the rural southwest quadrant to the inner city.

A buffer zone of 50 feet is considered to provide approximately 75% sediment and pollutant removal, while having minimal general wildlife habitat value. A buffer zone of 75 feet (Nashua’s standard for primary wetlands), is considered to provide 80% sediment and pollutant removal, and provides fair to good general wildlife habitat value. A buffer zone of 100 feet, by comparison, provides the same degree of pollutant treatment, but provides significant wildlife habitat value, as well.

In light of this information, it is recommended that Nashua’s standard buffer zones of 20, 40 and 75 feet may need to be reevaluated to determine if they are adequate to prevent water pollution and protect wildlife habitat. Such an assessment should utilize scientific methods, including water sampling and wildlife habitat assessment. While some degree of formal protection is better than none, if it is possible to increase environmental protection of water resources while not infringing on property rights, such action deserves careful consideration.

e. Floodplains

Floodplains are low-lying areas, usually adjacent to rivers and streams, which are periodically flooded. The Federal Emergency Management Agency (FEMA) has designated two main classes of floodplains: the 100-year and 500-year. The 100-year floodplain, or “zone A,” is that area with a 1% chance of being flooded in any given year. The 500-year floodplain, or “zone B,” is that area with a 0.05% chance of being flooded in any given year. FEMA has delineated these areas on official maps for most communities in the United States. Map IV - 9 shows the general location of the 100- and 500-year floodplains in Nashua. This map is not intended to replace the use of official FEMA maps in determining the location of floodplains or in decision-making, but is intended for general information purposes only.

As can be seen from the Map IV - 9, most of Nashua’s floodplains are located along the Merrimack River, the Nashua River, Salmon Brook and Pennichuck Brook. Small areas of floodplain also follow the course of some of the major streams in the City, such as Hassell Brook and Cold Brook.

Nashua regulates development in floodplains through the application of a floodplain development overlay
district. Any development proposed in a floodplain requires a permit from the Zoning Board of Adjustment (ZBA). All development must meet strict guidelines to ensure that the proposed building site is reasonably safe from flooding, and that the base flood elevation downstream of the site is not increased as a result of development, should a flood occur. In general, it must be shown that all new construction or substantial improvements of residential structures have the lowest floor (including the basement) elevated at or above the 100-year flood elevation. Any non-residential structure that includes areas below the 100-year flood elevation must be floodproofed such that the structure is watertight with walls substantially impermeable to the passage of water.

In general, it is good policy to avoid development in floodplains whenever possible. This is especially true for the 100-year floodplain, which is statistically more likely to be flooded in any given year than the 500-year floodplain. In addition, homeowners who borrow money in order to purchase homes in floodplain areas are required to obtain flood insurance. It is recommended that residential, commercial and industrial development be discouraged from locating in floodplain areas. However, water-related recreational uses, such as boat ramps and riverside parks, can be compatible with floodplains if they are carefully sited and constructed.

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2. Groundwater Resources

Stratified drift aquifers have been the focus of groundwater studies in the northeast because of their ability to store and transmit large volumes of water. Stratified drift is a glacial deposit composed of sand and gravel that has been sorted and left behind by glacial meltwaters. Mixed deposits, often called glacial till, also store water but not in the quantity available from stratified drift aquifers. In 1987, the United States Geological Survey (USGS) completed a study of stratified drift aquifers in the Nashua Region.

The study found that the most extensive stratified drift deposits occur in northern Nashua in the vicinity of Pennichuck Brook. A particularly significant deposit occurs in northwest Nashua near the Hollis border. The quantity of groundwater available in this area is sufficient for municipal water supply wells, should Nashua ever wish to supplement its surface water supplies with groundwater. The groundwater resources available in this location are yet another reason to limit development of this area.

At present, Nashua relies on surface waters from Pennichuck Brook, supplemented in the summer months with water from the Merrimack River, for its drinking water supply. However, in the future it may be deemed desirable and perhaps even necessary to supplement the surface water supply with wells. Pennichuck Water Work’s Integrated Water Resource Plan (1998) mentions the construction of additional wells near Pennichuck Pond as one of the options for increasing water supply. The Plan states: “The aquifer near Pennichuck Pond is extensive and well protected by company-owned property. The potential for the development of a series of gravel-pack wells is excellent.”

A small number of Nashua’s population in the southwest quadrant relies on individual wells for home water supply. Most of these homes are also beyond the current service area of Pennichuck Water Works. The minimum lot size for lots relying on wells is 40,000 sq. feet and lots with wells and septic systems is 60,000 sq. ft. These lot sizes are considered minimal for residential wellhead protection under most soil-based lot size standards. It is recommended that the City consider increasing these minimum lot size requirements in light of the more recent soil-based lot size standards. Such reconsideration should involve an assessment of the soils found in the area, adjacent land uses, and other pertinent factors. After such study, it may be deemed advisable to increase the minimum lot size for lots dependent on both septic systems and wells.

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3. Threats to Surface and Groundwater Quality

a. Introduction

Rivers, streams, lakes, and ponds face a myriad of threats. As previously mentioned, the two main categories of water pollution are point source and non-point source pollution. Point sources of pollution are those that can be traced back to an identifiable source, such as a pipe, sewer outfall, etc. Non-point sources of pollution are those that are more diffuse in origin, such as agricultural and urban runoff, septic system effluent, snow dumps, soil erosion, etc. This section will briefly discuss some of the issues and recent trends for point source and non-point source pollution. Recommended actions that can be taken to address each will be listed in Section B Management and Protection Plan for Water Resources, Section IV.B.

b. Point-Sources of Pollution

In recent decades, great progress has been achieved toward reducing point source pollution, largely through mechanisms created by the Clean Water Act. All point source discharges of pollution require a National Pollutant Discharge Elimination System (NPDES) permit. However, 100% of point source pollution has certainly not been eliminated, despite this requirement and other provisions of the Clean Water Act. Perhaps the greatest improvement in water quality is attributable to the installation of wastewater treatment plant in cities with public sewer systems. Prior to implementation of the Clean Water Act, most municipal sewage was dumped into rivers with little or no treatment. Today, all wastewater treatment plants provide primary, and most provide secondary, levels of treatment.

Nashua’s wastewater treatment facility (WWTF) came on line in 1960. From 1960 – 1989, Nashua’s WWTF provided primary treatment, which involves the removal of solids from the wastestream. Starting in 1989, the plant was able to provide secondary treatment, which removes most organic pollutants (termed BODs for biochemical oxygen demand) from the waste stream (approximately 95% reduction).

At present, combined sewer overflows (CSOs) are the major point source water quality problem for most rivers. CSOs are sewage overflows that occur when stormwater inflow, usually during and shortly after major storms, exceeds the capacity of the wastewater treatment system. The overflows are discharged directly into rivers, without any treatment, and therefore contribute to increased nutrient loading, bacterial contamination, and the introduction of other toxins. CSOs are a direct threat to human health and water quality. Therefore, CSO abatement warrants consideration as a high priority for future water quality improvement activities.

The City of Nashua is currently undertaking a major CSO project, which will address the infiltration of stormwater into the City’s sewer system. Map IV-10 shows the areas of the City with combined wastewater and stormwater systems.

The United States Environmental Protection Agency (USEPA) has issued the City an order requiring that the separation program be completed within 20 years, by December 31, 2019. The CSO project will replace the sewer lines in these areas, and provide for separate stormwater treatment or other measures.

As part of the CSO project, the City’s Division of Public Works will be implementing a program to reduce inflow and infiltration throughout the City, not just in the CSO areas. In general, infiltration (flow from leaky pipes and manholes) and inflow (flow from streams and rivers) reduces the treatment capacity of the Wastewater Treatment Facility and limits the ability of WTF to manage CSO discharges.
In undertaking the CSO project, the City will coordinate construction work with other City projects to reduce costs and impacts on neighborhoods. The City will also encourage other utilities such as Pennichuck Water Works and Energy North to replace their aging infrastructure at the same time the City is undertaking CSO construction work. In this way, disruption to neighborhoods and traffic flow will be minimized.

c. Non-Point Source Pollution

Non-point source pollution can be briefly defined as pollution that is transported from a variety of sources, such as farms, golf courses, roadways, parking lots, septic systems, etc. by rain and melting snow over the land, or through the soil into a waterbody. Non-point source pollution is both widespread and more difficult to address than point source pollution, due primarily to the diffuse nature of the pollution source. Non-point source pollution is generally regarded as the most significant current water pollution threat. Indeed, several studies document that two-thirds of all water pollution now comes from non-point sources. Now that CSOs are being addressed, water pollution abatement efforts should now focus primarily on non-point sources.

Before we address measures that can be taken to address non-point source pollution, we must first examine the process by which non-point sources degrade water quality. Urbanization results in an increase in the impervious area, generally from buildings and pavement, resulting in an increase in the volume and velocity of run-off. Stormwater run-off from urban areas may carry oil, gasoline, anti-freeze, road salt, contaminated dirt, and other chemicals. In addition, new housing developments generally apply a substantial amount of fertilizers and pesticides to lawns and gardens. Run-off carrying non-point source pollution is, by definition, “dirty,” and brings bacteria and chemicals into water bodies, and excessive amounts of nutrients such as nitrogen and phosphorous which encourage weed growth. The resulting excessive plant growth can choke waterways and make the water cloudy. When water bodies become cloudy and more shallow, their summer water temperature rises, while dissolved oxygen levels fall, which can lead to fish kills. This accelerated process by which water bodies become prematurely fertile is called eutrophication. The repeated influx of contaminated stormwater can cause lasting eutrophication and deterioration of water bodies. Pennichuck Water Works, in their Watershed Management Plan (1998), documents that this process is definitely underway in the Pennichuck pond and brook system, which is Nashua’s primary source of drinking water.

Non-point source pollution and land-use are closely linked, as can be seen from the above list of pollutants. Natural ground cover, which in the northeastern United States is forest, provides the greatest water purification and runoff treatment of any vegetative type. If the water quality of Pennichuck Brook, the Merrimack River, the Nashua River, and other water bodies is to be preserved and enhanced, it is imperative that land-use practices that minimize the cutting and disturbance of vegetation be adhered to in future development and re-development in the respective watersheds.

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B. Management and Protection Plan for Water Resources

1. The Watershed Approach to Water Quality Protection

The Merrimack River Initiative (MRI) Management Plan (March 1997) defines a watershed approach as “using a naturally delineated area -a watershed- as a unit of analysis and management. The watershed approach makes intrinsic good sense in that what we do on the land impacts the quality and quantity of water and other natural resources in the watershed.” The MRI Plan lists five major benefits of the watershed approach:
- Targets limited resources to achieve the most environmental benefit.
- Defines a unit in which to measure results.
- Develops a sense of identification with the watershed and a stewardship ethic.
- Shares responsibility for watershed protection and management among stakeholders.
  - Considers issues of sustainable growth.

It is recommended that the City adopt a watershed approach towards the protection of its water resources. A good first step in this direction was the City’s recent (1998) adoption of a Water Supply Protection District for the Pennichuck Brook watershed. The provisions of this district are covered in Section IV.B.2.

The MRI Plan lists several recommendations, found on pages 35 through 40 of their report, addressing issues of water quality, water quantity, data management, the watershed approach (focusing on interstate and inter-agency cooperation), education and outreach, and regulatory reform. The main water quality goals pertinent to municipalities listed in the Plan are:

- Decrease non-point source pollution throughout the watershed
- Decrease the impacts of combined sewer overflows (CSOs) throughout the watershed
- Protect existing high water quality waters and prevent further degradation of impacted waters

Nashua has taken a major step in addressing the first goal, through the recent adoption of City-wide storm water treatment standards. However, as previously mentioned, the Pennichuck pond system is already suffering from the effects of excessive nutrient loading and other impacts of non-point source pollution. Given the built-up nature of much of the watershed in Nashua, improvement of water quality in the Pennichuck Brook system will require remediation measures and the institution of BMPs for existing built sites.

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2. Existing and Recommended Regulatory Methods for Protecting Water Quality

a. Existing State Laws and Regulations Pertaining to Water Quality Protection

Perhaps the most pertinent state law affecting water resource protection is the Shoreland Protection Act, Chapter 483-B of the New Hampshire Revised Statutes Annotated (hereafter referred to as “the Act”). The Act aims to help preserve the shorelines of lakes, ponds, rivers, and streams throughout the state. The protected shoreland is the land located with 250 feet of the reference line of public waters, which for natural water bodies means the natural mean high water level. Any activity that would alter land within the protected shoreland, including clearing of vegetation, and subdivision for residential and non-residential uses, must comply with the provisions of the Act. According to the Act, new structures must be set back at least 50 feet from the reference (mean high water) line. Municipalities are empowered to adopt standards that are stricter than the Act; the reasons for this are discussed below.

The Act also states that, where existing, a natural wooded buffer of at least 150 feet be maintained from the reference line. According to the Act, the purpose of the buffer is to:

“protect the quality of public waters, by minimizing erosion, preventing siltation and turbidity, stabilizing soils, preventing excess nutrients and chemical pollution, maintaining natural water temperatures, maintaining a healthy tree canopy and understory, preserving fish and wildlife habitat, and respecting the overall natural condition of the protected shoreland.”
However, the Act provides for a fairly large loophole when it states that:

“Trees, saplings, shrubs and ground covers which are removed to clear an opening for building
construction, accessory structures, septic systems, roadways, pathways, and parking areas shall be
excluded when computing the percentage limitations under subparagraph (a)(2)(A).”

The subparagraph referenced places a limit on the amount of clearing that can be done within the natural
wooded buffer, which is a maximum of 50% of the basal area over a 20-year period. The minimum building setback
of 50 feet from the high water line is still in effect when development is proposed. This loophole effectively decreases
the natural buffer zone by 100 feet whenever development is proposed in an area subject to the Act. Though a 50-foot
vegetated buffer is sufficient to provide some degree of water pollution attenuation, it is of less value from a wildlife
habitat standpoint according to standards developed at the 1994 Riparian Buffer Zones Conference. A 50-foot buffer
is also less effective in screening development from riverside viewing. The City of Nashua has adopted buffer zone
standards that are stricter than that provided in the Act, with 75 foot buffers along major rivers and streams.

b. Local Ordinance Provisions for Water Quality Protection

There are several local ordinance provisions for water quality protection. The City’s wetlands ordinance and
floodplain development ordinance have previously been discussed. However, there are other sections of Nashua’s
Revised Ordinances that address issues related to water quality and management.

1. Water Supply Protection (Overlay) District

In 1998, the City enacted a Water Supply Protection (Overlay) District. The purpose of this overlay district is
“to increase protection for the Pennichuck Brook Watershed above the supply pond dam, including Pennichuck
Brook, its associated ponds, wetlands, and tributaries, said water being the primary source of the City’s
drinking water supply.” The overlay district covers all land determined to be within the Pennichuck Brook
watershed, upgradient of the supply pond dam. The district establishes a conservation zone within the overall
district that consists of all land areas within 300 feet of the annual high water mark of the major Pennichuck
Brook impoundments, and within 150 feet of all surface waters connected to the impoundments.

The purpose for establishing the conservation zone is to create an undisturbed natural buffer to protect the
drinking water supply. Tree cutting and land clearing is prohibited in this conservation zone. However,
parking lots and sidewalks may encroach 75 feet into the zone, provided they follow specific stormwater
management practices designed to capture and treat runoff created by a ten (10) year, 24-hour storm. The
district also places limits on the use of fertilizers and pesticides within 250 feet of the pertinent water bodies.

2. Other Water Resource Related Provisions of Nashua’s Zoning Ordinance

Division 9, Filling Water or Waterway Areas, addresses requirements that must be met for the filling of any
pond, lake, swamp, or other body of water, waterway, or drainage area. This section of the ordinance has been
effectively superseded by the more recent wetlands ordinance. Recent state and federal wetland laws prohibit
the outright filling of ponds, lakes, and large wetland areas.

c. Water Resource Protection Recommendations

Before discussing actions that the City can take to improve water quality that are not mentioned in the
watershed level plans and reports, it may be useful to briefly examine the most pertinent recommendations of the
Merrimack River Initiative (MRI) Management Plan (1997); the 1995 to 2020 Vision for the Nashua River Watershed,
prepared by the Nashua River Watershed Association in 1995; and the Pennichuck Water Works Watershed
Management Plan (1998). The authors of these plans have done an excellent job of outlining actions that need to be
taken to safeguard and improve water quality. A summary listing of the most pertinent recommendations is provided
below.
The most pertinent recommendations of the Nashua River, Merrimack River, and Pennichuck Watershed Plans for Nashua are:

**Generally:**

- Conserve open spaces for water quality, wildlife habitat, farms, forests and recreation.
- Encourage careful land use with well-planned development.
- Decrease non-point source pollution.
- Encourage the re-use and redevelopment of existing buildings and built areas (infill) over development of virgin sites.
- Adopt measures to encourage growth in environmentally compatible areas.

**More specifically:**

- Train local inspectors to inspect for and enforce BMPs.
- Educate user groups on the importance and utility of BMPs.
- Protect shoreline buffers by amending the local wetland ordinance to increase building setbacks and buffers.
- Provide funding for water resource land acquisition or easements.
- Amend the cluster development ordinance to specify the natural and community resources that are important to protect, and increase the required proportion of open space (35% is usual – Nashua’s current requirement is 10%).
- Minimize parking lot impacts by using permeable dividers, street buffer strips, and appropriate landscaping.
- Reduce transportation impacts of new subdivisions by using narrower streets with grass swales.
- Use on-site infiltration whenever possible.
- Use clearing and grading plans that minimize site disturbance, require grading plans, erosion control plans and inspect progress during construction.
- Minimize lawn sizes, encourage the use of native species for landscaping wherever possible and leave native vegetation in place as a buffer.

**VI. SUMMARY**

It is intended that this Conservation and Preservation Element of the Nashua Master Plan Update be in conformity with the adopted American Planning Association (APA) *Policy Guide on Sustainability*. The draft policy guide defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

In its Executive Summary, the draft APA policy guide states that:

“A variety of symptoms lead us to the conclusion that current development patterns are not sustainable. Global signs include global warming and climate variation, widespread soil degradation, deforestation, species extinction, and increasing disparities between rich and poor. A number of local problems are apparent as well, including central city disinvestment, loss of rich agricultural land, suburban sprawl, depletion of groundwater resources, and ever-increasing traffic congestion.”
To take an active role in redirecting the trend toward unsustainability, the APA and its chapters can support and develop planning policies that:

- Help reduce dependence on fossil fuels, underground metals, and minerals.
- Help reduce dependence on chemicals and other man-made substances that can accumulate in the biosphere.
- Help reduce dependence on activities that encroach upon nature.
- Meet the hierarchy of human needs fairly and efficiently.

“With these four planning policies as a guiding framework, local, regional, and state decision-makers can devise planning policies and action plans appropriate to their particular circumstances and communities.” (emphasis added)

In Nashua, several indications of unsustainable development are suburban sprawl, loss of open space and forests, and increasing traffic congestion. This Plan recognizes that Nashua is approaching build-out, and that the development patterns of the past cannot be changed. This Master Plan recommends policies and actions which will help to ensure a movement towards sustainability and less destructive and land consumptive development practices in the future. This Plan recognizes that Nashua is the central city for its region, and as such is a primary employment and retail center. A regional approach to sustainability would recognize this fact.

Therefore, a movement towards sustainability in Nashua will entail a careful balancing of industrial, commercial, and residential growth with measures to protect the most important wildlife habitat, open spaces, and water bodies. Actions taken to move towards greater sustainability should actually enhance the City’s economic health. The traffic congestion that currently plagues the City, for example, is perceived as a disincentive by many businesses that would otherwise choose to locate here. Development patterns that permit alternative transportation and shorter commutes would help to relieve traffic congestion, and could also help preserve open space and wildlife habitat in developing areas.

Though Nashua is the central city of an urbanizing area on the Massachusetts border, it has much to offer its residents in terms of outdoor recreation and access to natural areas. The City’s largest parks; Greeley Park, Mine Falls Park, Yudicky Farm, Southwest Park, and Roby Park all contain large areas of forest, field, riverfront, and other natural habitat. With the exception of Mine Falls Park, the natural areas in the above parks are relatively unknown to the general public. There is a need to make these areas more accessible to City residents, and to manage the impacts that increased use inevitably brings.

The rapid growth of the 1960’s, 1970’s, and 1980’s resulted in the loss of several green space and recreation opportunities. An example of a lost opportunity was for a greenway along the entire length of Salmon Brook, from the Massachusetts border to its confluence with the Merrimack River. Now, at the turn of the century, most of Salmon Brook suffers from extensive residential encroachment, with very little in the way of a significant natural, vegetated buffer zone along most of its length. Still, Nashua has the opportunity to “grow smart” from this moment, and there are still opportunities to safeguard and enhance the City’s remaining natural areas. The City’s recent acquisition of 291 acres of land in the southwest quadrant for recreation and conservation is commendable, and will add to the City’s quality of life. However, there are several other as yet unprotected natural areas deserving of attention, and it is hoped that the City will pursue the acquisition or otherwise protect some of these areas in the immediate years ahead. At the current rate of development, opportunities to acquire additional land for conservation or recreation will soon be gone.

The City will have an opportunity to protect all or part of several significant natural areas through the Regional Environmental Planning Program (REPP), to be administered by the Land and Community Heritage Commission. The Conservation Commissions of each community in the State were asked to identify their top 5 conservation priorities. In Nashua, these areas are:

1) the Pennichuck watershed lands in the northwest corner; 2) the land in current-use to the immediate west of Yudicky Farm; 3) the land north of Greeley Park, currently undergoing environmental clean-up; 4) trails and recreation land along the Merrimack River; and 5) the Intervale floodplain forest along the Nashua River across from Mine Falls.
There are several smaller parcels along the Nashua River that should also be considered for possible future acquisition. In some cases, these would add to the area of existing parks, and in others provide additional points of public access to the river. The City of Nashua was successful in obtaining funding for the Pennichuck parcel.

The City, largely through the efforts of the Heritage Trail Commission and the Urban Trails Alliance (UTA), has been developing a network of on-road and off-road trails over the last decade. Guidance for the development of these urban trails comes from *The Nashua Urban Trails Network* and *The Nashua Trails Plan*, a component of the Nashua Master Plan. Possible future trails to pursue include a loop trail on both the north and south sides of the Nashua River, connecting to Mine Falls Park, the as yet to be developed trails along the Broad Street Parkway, and the Nashua Heritage Rail Trail.

The once heavily polluted Nashua and Merrimack Rivers are the cleanest they have been in decades. This clean-up is largely due to the requirements of the Clean Water Act, which required communities to construct wastewater treatment plants, and industries to curtail most of their direct (point source) pollutant discharges. The Environmental Protection Agency is now requiring that communities remove the stormwater component of the wastestream that ends up at wastewater treatment plants. During significant storm events, wastewater treatment plants receive a greater quantity of combined sewage and runoff than they can handle, with the excess being released into rivers without treatment. By eliminating such combined sewer overflows (CSOs), water quality in the Merrimack and Nashua Rivers should improve even more. The greatest water quality threat facing our water resources today is non-point source pollution. In comparison to point source pollution, non-point source pollution is both harder to pinpoint and more difficult to address. A large component of non-point source pollution is runoff from streets, parking areas, lawns, and agricultural areas. This runoff carries gasoline, oil, road salt, insecticides, herbicides, fertilizers and various other chemicals into water bodies. The result is often accelerated eutrophication and degradation of water quality. Therefore, improvements to water quality in the future will largely derive from addressing non-point sources.

Nashua has the opportunity to “grow smart” in the coming decades. As the City approaches full build-out, opportunities to acquire additional open space and protect wildlife habitat will diminish. The land use decisions made over the next two decades will largely determine the City’s character for most of the 21st century. Let us not forget that Nashua’s high quality of life comes not only from a vibrant economy, but also from a healthy environment, one in which wildlife still has a home, and in which people have green spaces to recreate in. As one participant in a Nashua River Watershed Association planning session remarked: “We may be the last generation that has the chance to save open space.” Implementation of this Master Plan will meet this challenge.
I. CONSTRUCTION MATERIALS RESOURCES IN NASHUA

The construction industry in New Hampshire depends on a readily available supply of raw materials. The New Hampshire statutes that govern the development of master plans require that they address the location of known construction materials, and identify the location of current and abandoned operations. This section of the Master Plan is concerned with the location and characteristics of construction materials in sufficient quantity and quality to be economically viable for extraction operations. Isolated pockets of such resources will not be addressed.

A. Regulation of Construction Material Extraction

1. RSA 155 – E
2. Provisions of the Nashua Zoning Ordinance

B. Location and Extent of Resources

1. Sand and Gravel Resources

C. Active and Abandoned Resource Extraction Operations

1. Active Excavation Sites
2. Abandoned/Restored Sites
In those communities where special permit or exception powers are given to the Zoning Board of Adjustment (ZBA), the ZBA may also be involved as the initial permitting body, with the Planning Board reviewing the fine details under its Site Plan review powers.

2. Provisions of the Nashua Revised Zoning Ordinances

In Nashua, the “removal of sand, gravel, quarry or other raw material” is permitted by special exception (permit granted by the Zoning Board of Adjustment), in the following zoning districts: R-40, R-30, R-18, HB (Highway Business), PI (Park Industrial), and GI (General Industrial). The “processing and treating of raw materials, including operations appurtenant to the taking, such as grading, drying, sorting, crushing, grinding and milling operations” are permitted in the above districts with the exception of the R-18 district.

The Zoning Ordinance places several restrictions on where and how permitted operations can occur in the above districts. The following are perhaps the most important to highlight from a Master Plan perspective:

- “Removal and processing operations shall not be conducted closer than fifty (50) feet to a public street or to any property line”
- “Provision shall be made for the adequate control of dust during operations.”
- Reuse Plan: “It is recognized that land reuse of a removal site is in the public interest; therefore, a land reuse plan must be submitted to and approved by the administrative officer following review by the Planning Board, subject to the following regulations” (two of which are reprinted here).
  * “The land reuse plan and its implementation applies to the conversion of the abandoned site and its planned reuse, including landscaping and erosion control. It is therefore required that any land reuse plan correspond to a situation which could reasonably occur in the immediate future, 0 – 5 years, and be revised as necessary as to the existing physical character as the removal area changes.”
  * “The person conducting the operation shall place at least four (4) inches of topsoil over all excavated, filled or otherwise disturbed surfaces, and seed with a perennial cover crop, reseeded as necessary to assure uniform growth and soil surface stabilization.”

B. Location and Extent of Resources

1. Sand and Gravel Resources

In southern New Hampshire, the most important construction material resource is sand and gravel. This section will examine the location of economically viable deposits, and describe known current and abandoned sand and gravel extraction sites. Unlike central and northern New Hampshire, Nashua does not contain significant granite outcroppings suitable for quarrying operations.

Nashua is fairly rich in sand and gravel resources, which is not surprising, given its location at the confluence of the Nashua and Merrimack Rivers. As these rivers meandered across the landscape over the span of thousands of
years, they left many alluvial deposits in their wake. The glaciers of the last ice age also left many sand, gravel and larger stone deposits behind.

a. **Soil Types**

The following soil types have been identified by the Natural Resources Conservation Service (formerly the Soil Conservation Service) as suitable for sand and gravel extraction:

- HsA, HsB, HsC, HsD: Hinckley loamy sand
- UdA: Uditsamments nearly level
- WdA, WdB, WdC: Windsor loamy sand
- Pr: Pits, gravel
- Su: Suncook loamy fine sand
- AgA, AgB: Agawam fine sandy loam

The general (or approximate) location of these soil types within Nashua is shown on [Map V-1](#).

As can be seen on the map, sand and gravel containing soils are widely distributed in Nashua. The four main concentrations are found in the southwest corner, in the area centered on Mine Falls Park, along Pennichuck Brook, and in the northwest corner. Many of these areas have been developed for residential, commercial, or industrial uses, and are hence not available for future extraction. Mine Falls is a City Park and is also off-limits for commercial extraction.

b. **Availability of sand and gravel resource areas for extraction**

Of the significant sand and gravel deposits in the City, only those found in the southwest and northwest corners are readily available for extraction. The two active sites described below in Part C. are found in the southwest quadrant. This part of Nashua is in the R-40 zoning district, with a minimum lot size of one acre. By the time the City reaches build-out, most of this area will likely be developed for low-density residential housing, if significant areas are not purchased for conservation, recreation or other municipal purposes.

Like the southwest quadrant, the northwest quadrant is one of Nashua’s final frontiers. There are extensive sand and gravel deposits in this area. Although this entire area is zoned Park Industrial and Airport Industrial, it is unlikely that the entire area will be developed for that use. The area is very flat, with numerous wetlands, and much of it is within the immediate watershed of Pennichuck Brook. This area has been identified as one of the most significant environmental areas in Nashua through the Regional Environmental Planning Program (REPP). As such, it may qualify for partial / total acquisition through the New Hampshire Land and Community Heritage Investment Program.

Industrial development is most likely to occur in the northeastern section of this vast area, off the extension of Northwestern Boulevard, and into the interior to some degree. There will likely remain a significant portion of inaccessible acreage that is most suited for conservation and water supply protection. While it is possible that new sand and gravel operations could operate within this area, its present inaccessibility and environmental factors may preclude such use.

[Click to return to the top of the Construction Materials Element](#)
C. Active and Abandoned Resource Extraction Operations

1. Active Excavation Sites

   According to City records and records maintained by the New Hampshire Department of Environmental Services and the Department of Revenue Administration, as of 2001 there is only one permitted, active excavation site in Nashua. This site is located at 40 Groton Road, and records indicate that most likely sand and gravel was removed from the site. The area of active excavation is approximately 3 acres.

   There are two other sites where excavation is taking place: one at the intersection of Main Dunstable and Conant roads; the other on Middle Dunstable Road near the State line. These excavations are on sites where land is being cleared for new housing construction.

2. Abandoned / Restored Sites

   Sand and gravel extraction operations were once much more common in Nashua. Most of these older sites have been or are in the process of being converted into other uses, such as recreation sites and residential subdivisions. One, the “Zephyrhills” site off Groton Road in southwest Nashua, is being converted to an executive 18-hole golf course. Another well-known former site is the Brox gravel pit located off of Broad Street, which covers approximately 85 acres. The Brox site will be the location of Nashua’s second High School, scheduled to open by 2002. No further commercial excavation or processing operations will be taking place at this site.

   There are likely to be several other smaller, abandoned sand and gravel excavation sites within Nashua, given the prevalence of the resource. Most of these have been reclaimed by nature, or have been converted to another land use, such as residential, commercial, or industrial.

II. GOALS, OBJECTIVES AND RECOMMENDATIONS

   GOAL: Ensure that Nashua’s sand and gravel resources are accessible to extraction in an environmentally sound manner.

   OBJECTIVE: CONSTRUCTION MATERIALS

   Any future extraction of such resources should be done in manner that respects the environment, abutting land uses, and the neighborhood in which the operation takes place and provides full reclamation.

   Recommendations:
   a. Locate and map known sources of construction materials and assess their economic value to the City.
   b. Evaluate the extent and current status of existing excavation permits under RSA 155-E, as well as reports filed pursuant to RSA 155-E:2, I(d) with respect to non-permitted excavations.
   c. Consider revisions to the excavation provisions in the Nashua Revised Ordinances (NROs), if deemed necessary to improve excavation and closure operations.
d. Work with surrounding communities to develop a regional approach to managing sand and gravel resources.
VI. COMMUNITY FACILITIES ELEMENT

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VI. COMMUNITY FACILITIES ELEMENT

I. COMMUNITY FACILITIES IN NASHUA

A. Introduction

This Community Facilities Element of the Master Plan will discuss both City-owned facilities, such as the schools, the Fire Department, the Police Department, and other City departments, as well as the most important private facilities, such as hospitals and higher education facilities.

This Element will attempt to provide as comprehensive an overview as possible of each facility or function, without replicating the more specific plans and documents pertaining to each. The current state of each facility will be presented, followed by a discussion of future plans and the implications of a built-out Nashua on each facility.

The following City Divisions / Departments will be discussed in this element:

- Nashua Fire Rescue
- Nashua Police Department
- Public Works Division (discussion of each Dept. with the exception of Solid Waste and the Wastewater Treatment Facility, which are discussed in the Utilities and Public Services Element)
- Nashua School Department
- Nashua Public Library
- Nashua City Hall
- Public Health
- Nashua Airport (Boire Field)
- Miscellaneous City Facilities (such as the Hunt Building, etc.)
The following private and federal government facilities will be discussed:

- The City’s Hospitals
- The Federal Aviation Administration (FAA) Center
- Higher Education Facilities (Rivier College, Daniel Webster College, Franklin-Pierce College, Hesser College, New Hampshire Technical College)

B. Goals, Objectives and Recommendations

GOAL: THE CITY SHOULD STRIVE TO PROVIDE THE BEST POSSIBLE PERSONNEL, FACILITIES, AND SERVICES TO MEET THE NEEDS OF ALL NASHUA RESIDENTS AND BUSINESSES.

1. OBJECTIVE: FIRE/RESCUE

Provide the best possible fire and emergency response service to all parts of the City.

Recommendations:

a. Develop a new fire safety needs assessment for the City (similar in scope to the Fire Pro report). Such a report should consider the standards for and need for new facilities, manpower, etc., and also study such issues as response time goals and coordination with other City agencies and nearby communities.

b. Improve service to the northwest quadrant of the City, particularly the Route 101-A corridor, either by building a new fire station in the northwest quadrant or through alternative means such as expanded mutual aid.

c. Identify and acquire site for possible new station in the southwest quadrant of the City.

d. Institute and follow a long-term maintenance plan for existing fire department facilities consistent with the City-wide maintenance plan.

e. Address response time in Broad Street corridor.

f. Consider moving the Arlington Street Fire Station further west to increase its effective service area and provide a modernized facility.

2. OBJECTIVE: POLICE

Provide the best possible police service to all parts of the City.

Recommendations:

a. Maintain and optimize use of the current Nashua Community Policing Neighborhood offices. Increase Neighborhood Police Offices if and where appropriate.

b. Maintain adequate staffing levels in the Police Department.

c. Continue enhanced police service through the use of new technology that will make the Police Department more efficient.

d. Ensure that the Police Department remains adequate for the City’s needs.

e. Enhance traffic enforcement.
3. **OBJECTIVE: COMMUNITY HEALTH AND SERVICES**

Provide the best possible community health services for all City residents.

**Recommendations:**
- a. Direct the provision of health care services to needy citizens.
- b. Strive to meet the needs of clients seeking assistance.
- c. Provide adequate childcare services.
- d. Ensure that the Community Services Division has adequate facilities to meet demand for services.

4. **OBJECTIVE: GENERAL GOVERNMENT/CITY HALL**

Provide the best possible, efficient government service to the citizens of Nashua and the general public. Strive to provide first-rate services and facilities that maintain and enhance the public health, safety, welfare, and education of its citizens.

**Recommendations:**
- a. Improve and enhance the physical condition of City Hall by undertaking needed repairs, as documented in the Capital Improvements Program, and by making the building more energy efficient. Develop a City-wide maintenance plan/schedule for all municipal buildings.
- b. Provide efficient, high quality services to all residents of the City and have a strategic plan to review these services.
- c. Improve communications and communication systems between City divisions and departments to provide the best possible service to Nashua’s citizens.
- d. Use the latest available technology, such as the Internet, to improve communications and access to information for all Nashua residents.
- e. Ensure that the City’s institutional uses meet the same land use standards and criteria as private land uses.
- f. Utilize Geographic Information Systems to its fullest extent.
- g. Consider creating a Facility Division that would be responsible for maintenance and repairs at all municipal buildings and land.

5. **OBJECTIVE: PUBLIC EDUCATION/SCHOOLS**

Continually strive to improve the quality of public education for all students, so as to graduate students that are well prepared for life and careers in the 21st century.

**Recommendations:**
- a. Develop and adopt a comprehensive plan to update existing educational facilities to insure provision of the most efficient and up-to-date physical plants and most modern equipment.
- b. Develop a truly comprehensive capital and operating plan that will fully address the long-range needs and goals of the school system.
- c. Consider acquiring a site for a possible new school in the southwest quadrant of the City.
- d. Ensure that school sites are large enough to accommodate all necessary educational functions, as well as provide needed recreational and open space for students.
- e. Ensure that the City’s educational system needs keep pace with changes in educational strategies and technologies.
- f. Provide a safe and continuous network of properly maintained sidewalks for all students, and promote walking and bicycling as the preferred mode of transportation.
- g. Provide safe bus transportation for all qualifying students that meets schedule needs.
h. Continue to monitor the City’s growth and revise enrollment projections on a regular basis so that any future facility needs are anticipated long before they become urgent.

6. OBJECTIVE: LIBRARY

Maintain the Nashua Public Library as one of the premier libraries of northern New England.

Recommendations:

a. Utilize the space and functional potential of the entire main library building to its fullest capacity.
b. Incorporate and make full use of new technologies in library services, including Internet access, computerized circulation and acquisition functions and additional applications as they evolve.
c. Explore development of branch libraries in the southwest and northwest quadrants, and on Bridge Street in the Crown Hill area.
d. Link the public library with the public school libraries.

7. OBJECTIVE: HOSPITALS AND MEDICAL FACILITIES

Support efforts of Nashua’s two major hospitals and other medical facilities to continue to provide superior medical services to the City’s population.

Recommendations:

a. Consider if the zoning ordinance, as it relates to medical services generally, needs to be revised to include provisions for a “Medical Services District” and related use and dimensional requirements.
b. Any hospital or medical facility expansions need to recognize and protect adjacent residential areas from unreasonable impacts.

8. OBJECTIVE: CULTURAL RESOURCES AND FACILITIES/ARTS AND ENTERTAINMENT

Support efforts to make the City of Nashua a regional center for social, cultural and entertainment programs.

Recommendations:

a. Foster and encourage the development of a Nashua cultural affairs organization.
b. Encourage development of appropriate venues for the arts, social and cultural programs investigating the feasibility of a cultural facility.
c. Encourage public art.
d. Foster cooperative arrangements with the institutions of higher learning to host and promote artistic and cultural programs and events.
e. Identify creative funding sources and assist in the most appropriate location for, and plan the construction of, a first-rate performing arts center, ideally in or close to the downtown if a feasibility study shows that a performing arts center is viable.

9. OBJECTIVE: HIGHER EDUCATION FACILITIES

- Provide a supportive environment for both general and specialized higher education opportunities.

  Recommendations:
  a. Encourage the higher educational facilities (HEFs) to coordinate their offerings in order to reduce redundancy and fill service gaps.
b. Support the visibility of programs at local colleges and trade schools.
c. Support coordination between economic development organizations and institutions of higher learning.
d. Identify and prioritize the educational facility needs of Nashua, so that the HEFs may fulfill some community facility needs, and, conversely, City facilities may fulfill some HEF needs. Explore the feasibility of shared facilities.
e. Require the HEFs to maintain their campus development (master) plans, which are comprised of such elements as growth rates, site plan issues, parking and safety issues.
f. Identify HEF growth area boundaries for future land acquisition and new facilities, both within and adjacent to HEFs. Define the relationship between HEFs and surrounding areas. Revise the development regulations (zoning and site plan ordinances) accordingly.
g. Encourage the HEFs to work with neighborhoods to resolve land use concerns via public forums, focus groups and public hearings for input.
h. Encourage the HEFs to assess the relationship between their educational programs and present and projected local and regional job opportunities. The HEFs should strive to offer programs that will contribute to the local and regional employment base.
i. Encourage the HEFs, the Nashua Senior High School, and the Junior High Schools to share facilities, programs, and curriculum development so as to benefit all citizens in the most efficient manner possible.
j. Consider if the zoning ordinance needs to be revised to include provisions for a “Higher Education District” and related use and dimensional requirements.

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II. COMMUNITY FACILITIES, INVENTORY AND ANALYSIS

A. Public Safety

In Nashua, the Police Department and Nashua Fire Rescue (NFR) are the branches of city government that provide public safety functions. Emergency medical (ambulance) services are provided by Rockingham Ambulance Service located at 380 W. Hollis St., which has been serving the City since 1978. Currently eight ambulances are available to provide emergency services to the City of Nashua. Rockingham Ambulance Service also provides complete medical transport and wheelchair services for residents in the City.

Nashua Fire Rescue also leads the City’s Emergency Management System, which is built around a unified command structure of all Federal, State, and local agencies that would be involved in responding to hazardous materials accidents, natural disasters, and other civil emergencies that have the potential of putting citizens and the community at risk. This Emergency Management System is also responsible for assisting the community in researching and locating funds for planning, training, emergency equipment, and any long-term emergency costs. Examples of recent projects under this system include the remediation of the Johns Manville site and the Brownfields grant for site assessment.

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1. Nashua Fire Rescue (NFR)

a. Current Situation

1) Existing Fire Stations
NFR is a full-time Fire Department that operates six stations throughout the City which are manned 24 hours a day.

The six fire stations range in age from three years (the new Lake Street Fire station) to 111 years (Amherst Street station). NFR’s emergency dispatch center is located at the old Lake Street Fire Station at 38 Lake Street. A brief description of each NFR facility will be given below. In 1986, NFR commissioned the Fire Pro Study to examine the management, operations and facilities of the Department and make recommendations on how they could be improved. Though this study is now 13 years old, NFR still relies on it as their primary planning document. The MAI report, prepared in 1994, was commissioned by the City to examine all aspects of government operations, including those of NFR. This report will also be cited in this examination of Nashua’s Fire Department. Detailed descriptions of each fire station (with the exception of the new Lake Street station), fire apparatus, and other Fire Rescue assets is found in the FirePro Study. As this report is now 13 years old, it will not be up-to-date on all Fire Rescue facilities, equipment, manpower, and other issues, but is still the most comprehensive single document on department facilities and operations.

Map VI - 1 shows the locations of the six existing fire stations, their first response districts, a mile-and-a-half radius around each station (the maximum recommended service area), and areas of delayed response (greater than five minutes). It will be helpful to refer to this map when reading the following section on the fire stations and NFR operations.

**Map VI-1 Fire Districts and Response Map**

Amherst Street Station:

The Amherst Street Fire Station is Nashua’s oldest, built in 1890. It is a 2-story, 3-bay structure. This station is located in a densely populated part of Nashua near the intersection of Amherst Street and Main Street. The station was originally built for horse-drawn apparatus. The Amherst Street station is in need of renovations in order to meet the needs of a modern fire department. The 1994 MAI report states: "The Amherst Street station should be completely renovated. The station is located in a position to provide adequate fire protection for its response district. The station should be completely renovated to include new kitchen and expanded restroom facilities to accommodate the number of personnel assigned. Drop ceilings, new exterior doors, and windows should be installed for energy efficiency."

The small size of the lot (1/3 acre) has lead to parking problems for Fire Rescue staff. NFR is attempting to purchase the parcel immediately adjacent to the fire station in order to provide additional parking for staff and customers.

As seen on Map VI-1, the first response district for this station covers the northern part of the downtown and the City’s entire northeast quadrant. The 1.5-mile recommended service radius for this station includes most of that area. However, there are several areas outside the 1.5-mile radius, such as the Tinker Road area and extreme north end off Concord Street. Areas of delayed response (greater than 5 minutes) are shown in hatching.

Arlington Street Station:

The Arlington Street or Crown Hill Fire Station was built in 1935. It is a 2-bay structure, also located in one of Nashua’s older, densely populated neighborhoods. Perhaps the greatest operational deficiency of this station is its location near the Merrimack River, which effectively reduces its potential service area, defined as a mile-and-a-half
radius from the station. Nearly half of the 1½-mile radius is located across the Merrimack River in Hudson. Replacing this station with one located further west would increase the effective radius, and replace an old station in need of many repairs with a modern facility. As seen on Map VI - 1, the first response district for the current Arlington Street station covers the area of eastern Nashua north of the D.W. Highway commercial area and south of East Hollis Street west to Main Street.

Conant Road Station:

The Conant Road Fire Station was built in 1971. This 2-bay structure is located in a residential area, which dates back to the 1960’s. It was the first fire station located west of the Turnpike. Its first response district includes the majority of Nashua’s southwest quadrant, as well as the Simon Street area and the high school. As seen on Map VI - 1, there are many areas of delayed response within this fire district, even within the 1½-mile recommended service radius. These delayed response areas within developed neighborhoods are largely due to the layout of the road network, which does not facilitate quick access between neighborhoods. Most of the City’s southwest quadrant, which is outside the 1½-mile radius, is considered an area of delayed response.

Lake Street Station:

Nashua’s newest fire station was built in 1998, and is located at 177 Lake Street, approximately 3/8 of a mile west of the old Lake Street station, which now serves as the Department’s communications / dispatch center. This new facility comprises approximately 25,000 square feet and is a 4-bay structure with two stories on both sides of an apparatus bay. One side houses on duty personnel (10 members), the other houses NFR administration and training, including a large training classroom and library. The Lake Street station first response district did not change with the move to the new station, but response times within the district have improved.

Pine Hill Road (Airport) Station:

The Pine Hill Station was built in 1961. This 2-bay station is located immediately adjacent to the Boire Field Airport. The station’s first response district includes most of the northwest quadrant. Much of the extreme northwest corner and the northern border with Merrimack are both outside the 1½ mile radius and are areas of delayed response. This situation and possible remedies will be discussed in part 4) of this section below.

Spit Brook Road Station:

The Spit Brook Road Fire Station is the City’s second newest, built in 1977. It is located on Spit Brook Road a short distance from Exit 1 of the turnpike, and is the primary station servicing the Daniel Webster Highway commercial area. The first response district of this station includes the eastern part of the southwest quadrant and the D.W. Highway commercial area of southeastern Nashua. Though most of the district is within the recommended 1½-mile radius, there are several areas of delayed response within the district. These are shown on Map VI - 1. The road network in the area, the barrier posed by the turnpike, and the traffic congestion found along the D.W. Highway are the primary causes of this situation.

Communications Center at 38 Lake Street:

The original Lake Street Fire Station was constructed in 1900 when fire apparatus was horse-drawn. Despite its age, it served as a full service fire station until 1998. In order to accommodate the needs of a modern fire station, the building has required many renovations over the years. In 1999, after the construction of the new Lake Street Fire Station, the old station was completely renovated in order to house the relocated Communications Center, which was formerly housed in a small space adjacent to the American Stage Festival building. The new dispatch center is staffed by a minimum of two dispatchers per shift. There are offices for a superintendent, assistant superintendent, and the linemen of fire alarm. This new communications center places all of NFR’s dispatch equipment in one location and allows for much more efficient operations.
2) Personnel and Apparatus

Personnel and Staffing:

The reference book for fire department standards is titled *Managing Fire Services* (published by International City Management Association), or more informally as the “green book.” The green book provides standards for all aspects of fire department services, including staffing levels. The staffing level standards found in the book include support and management staff, excluding secretaries and fire dispatchers. The standard for the northeastern United States given in the book is 23.4 firemen per 10,000 population. At an estimated population of 83,000, that equates to 8.3 x 23.4 = 194 fire personnel. As of July 1, 1999, there were 174 Fire Rescue personnel in Nashua meeting the criteria. This represents a shortfall of 20 fire department employees, according to green book standards. Therefore, Nashua can be said to have a lean fire department, one that is perhaps adequate for public safety purposes, but is bordering on understaffing.

As a full-time fire department, NFR operates 24 hours a day, 365 days a year. NFR employees are on a four-platoon system. Each platoon works an average of 42 hours per week, and includes a deputy chief, six station officers (one per station), and thirty firefighters. Each engine responds with an officer (Lieutenant or Captain), a driver/operator, and 2 firefighters.

Fire Fighting Apparatus:

Nashua Fire Rescue has the following fire fighting and support apparatus as of 1999: 7 fire engines dating from 1982 – 1997; 4 ladder trucks dating from 1977 to 1998; 2 fire pumps, both from 1979; and several other fire fighting vehicles, including a forestry truck, a special hazards unit, a mobile command center, and several pick-up trucks and vans.

3) Mutual Aid Agreements

NFR has mutual aid agreements through two organizations. The first is Souhegan, which is comprised of approximately 25 communities to the west of Nashua in southern New Hampshire. This organization also developed the Regional Hazardous Materials Response Team. The second is the Border Area Mutual Aid Association, which is comprised of southern New Hampshire communities north to Hookset and east to the seacoast, and several communities in north-central Massachusetts. Approximately thirty communities participate in the Border Area Mutual Aid Association.

Additionally, NFR and the Merrimack Fire Department have an automatic response agreement for areas west of the Somerset Parkway on the Amherst Street corridor and in Merrimack along the Daniel Webster Highway to just south of the F. E. Everett Turnpike Exit 10. This agreement dispatches fire apparatus in both communities at the same time to respond to a fire or life threatening situation, which aids response times for these areas of Nashua and Merrimack.

The Assistant Fire Chief mentioned that Nashua may enter into an agreement with Merrimack to assist funding staff increases at the Naticook Road Fire Station in southern Merrimack. If this agreement is approved, the need for a separate fire station in Nashua’s northwest quadrant to service the Route 101-A corridor and the surrounding area may be reduced. The effectiveness of such an agreement would be augmented by maintaining emergency only access between Perimeter Road and Northwest Boulevard.

4) Areas of Delayed Response and Other Fire Service Deficiencies
One of the most important factors in effective fire fighting is response time. Response time is the amount of time elapsed from when a call is received by the dispatch center to when fire apparatus arrives at the scene of a fire or other emergency. Once started, fires tend to spread rapidly, and a minute’s difference in response time can mean the difference between suppressing a fire before it spreads out of control and a structure suffering extensive damage. Therefore, Nashua Fire Rescue aims to keep response times to a minimum. Response times greater than five minutes are considered excessive. Areas of delayed response are shown on Map VI - 1. The other standard often used by fire departments is a 1½ mile radius around a fire station. This is considered the maximum recommended service area for fire stations. It is interesting to note that many of the areas of delayed response are found within the 1½-mile radius from a given fire station. This is especially true for the Conant Road Fire Station, the Spit Brook Road Fire Station, and the Pine Hill Road (Airport) Fire Station. The reason for these areas of delayed response within the recommended maximum service radii is that the City’s network of arterial, collector and residential streets is often not conducive to rapid response.

Many residential streets are far removed from the arterial and collector streets that provide access to their area, and hills and sharp turns only compound the problem. Many local streets have only one means of access, which presents a safety hazard when a sole access point becomes blocked, either by an accident, fallen trees, or power lines. For this reason, it is the policy of Nashua Fire rescue to require that new subdivision streets have multiple points of access, and where full connections are not possible, that an emergency access road be made available.

Increasing traffic congestion is also playing a role in hampering timely response. This is especially true for the downtown and D.W. Highway areas. The Broad Street Parkway may relieve traffic congestion in the downtown, and the F.E. Everett Turnpike improvements may alleviate some of the congestion in south Nashua. The proposed commercial area access road connecting Poisson Avenue and Daniel Webster Square Shopping Center should also reduce traffic volumes on D.W. Highway, which should facilitate the movement of emergency response vehicles in the area. Of paramount concern to Fire Rescue is the hazardous materials used by the chemical manufacturing and defense industries adjacent to the shopping area. During holiday periods there are large numbers of shoppers and employers in the corridor, creating heavy traffic congestion. Fire rescue has been working with the division of Public Works Traffic Department since 1991 to be able to better control lights to improve emergency response time. It is anticipated that this system will be completed in 2001.

b. Future Needs

Now that the new Lake Street Fire Station has been constructed, the relocation of the Arlington Street Station is currently the Fire Department’s highest priority long-term project. The station is over 70 years old and there is no room for expansion on the site. If a new station is built, the old station would be turned over to the City for some other municipal use. The current Arlington Street station is located close to both the Merrimack River and the City boundary, which effectively reduces its value to the City by nearly 50%. Relocating this station further to the west will enable service to be extended in all directions.

Maintenance at several fire stations throughout the City has been deferred for many years. In particular, the Airport Road and Amherst Street fire stations are in need of extensive remodeling. NFR will be requesting that deferred maintenance be funded through the City’s capital improvements planning process. Regular building maintenance is not normally considered a capital project, but NFR believes that their inability to perform regular maintenance on many of their facilities in the past has lead to a situation that requires an initial infusion of substantial dollars to begin to remedy the problem.
2. Nashua Police Department

a. Current Situation

The current Nashua Police Station was built in 1977, when the City’s population was approximately 64,000. The City has since grown by approximately 20,000 people, and has experienced a great deal of commercial and industrial growth. The Police Station had become increasingly crowded over the years, as the City added policemen and associated staff to keep up with the demands of a growing population. In addition to overcrowding, the Police Station suffered air quality problems, and was unable to modernize to the extent desirable due to the lack of space. This situation was remedied through a 23,326 square foot addition to the station, which was completed in 2000. The Nashua Police Department (NPD) will also be installing new computers, which should bring Police Department information technology up to current standards.

There are presently 160 officers on the police force. The national average for a city of 90,000 people is 222. The Police Department would like to increase the number of officers over the next several years to accommodate the increased workload and provide more efficient services to the public.

b. Future Needs

The NPD sees the need for specialized patrol units increasing in the future. The Bike Patrol is one such specialized unit. Police Officers on mountain bikes have become an increasingly common sight in downtown Nashua and Mine Falls Park. There are presently 17 officers assigned to the bike patrol unit. The NPD also sees an increasing need for school patrols. As Nashua’s population becomes more diverse, there will be an increasing need for bilingual officers, particularly Spanish speaking officers. As mentioned above, there is a need to hire additional police officers to meet current and anticipated workloads. There is also a need to establish a dedicated traffic enforcement unit and pursue changes in revenue distribution fines to fund local traffic enforcement.

Several NPD sub-stations / community centers have opened in recent years. These community centers are found on: Ash Street, Railroad Square, Brook Village, French Hill, Pheasant Lane Mall, Major Road and the new sub-station off of Conant Road in the Maplewood Subdivision. It is possible that several additional community centers will be opened in coming years.

Other trends anticipated by the Police Department include: greatly improved information technology, continued interaction with non-traditional partners to solve community problems before they become police issues, a change in the approach to juvenile offenders, as well as internet crime and investigation techniques.

B. Public Works

One of the largest City of Nashua divisions in terms of the number of departments, employees, and functions, is the Public Works Division. The Public Works Division includes the following departments: Engineering Department, Streets Department, Solid Waste Department, Traffic Department, Parks and Recreation Department, and the Wastewater Treatment Plant. The Parks and Recreation Department, Street Department, Traffic Department and the Engineering Department will be discussed in this element, whereas the Wastewater Treatment Plant and the Solid Waste Department are discussed in the Utilities and Public Services Element.
1. Parks and Recreation Department

The Parks and Recreation Department, as its name implies, is responsible for the maintenance, improvement, and development of public park and recreation space in the City of Nashua. The Parks and Recreation Department also runs public recreational programs at the many parks and sports fields located throughout the city. Examples of these programs include youth soccer and baseball, and adult softball.

There are three main “City Parks”: Mine Falls Park, Greeley Park, and Yudicky Farm Park. These three parks alone total 646 acres, or 67% of the public park and open space in the city. In addition to the three City Parks, the Park and Recreation Department maintains and runs programs at 7 district level parks, 12 neighborhood parks, 10 playlots, and 10 mini-parks. The City recently adopted the Nashua Recreation Master Plan (1999), which replaces the 1977 Park and Recreation Plan. The 1999 Plan is a comprehensive document that addresses the full gamut of recreational facilities and future recreational needs of the City of Nashua. City parkland was previously discussed in detail in the Conservation and Preservation Element (see Chapter IV. Section II A.1)

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2. City Engineering and the Street and Traffic Departments

The City Engineering Department is responsible for the development of engineering plans for all City projects, such as road (re)construction, park facilities, and other municipal properties. The Engineering Department also assists the Planning Department and the Community Development Division with the review of subdivision and site plans, ensuring that they meet all City ordinances.

The Street Department is located at 15 Riverside Street, near the Police Station and Exit 5 of the Turnpike. The Street Department maintains approximately 285 miles of City streets. At present, the Street Department employs 78 people, plus a small number of seasonal workers. Their equipment inventory includes 25 dump trucks with plows, 10 pick-up trucks, 8 pieces of construction equipment, 2 sewer line cleaning trucks, and 3 street sweepers.

The Street Department is responsible for public street maintenance and reconstruction, snow plowing, street sweeping, sidewalk construction and repair, and support for other Departments in the Public Works Division. The Department also performs vehicle maintenance for the Solid Waste Department. Their greatest future need is for a Geographic Information System tailored to their operations. Such information technology applied to the Street Department would enhance the efficiency of their operations and could result in personnel, equipment, and fuel cost savings.

The Traffic Department is responsible for the timing and coordination of traffic flow in the City. This department is responsible for the placement and maintenance of traffic signs, signals and the implementation of traffic calming measures. The Traffic Department also works with the Planning Department in the review of traffic studies to determine impact of additional traffic that may be generated by new land uses as part of the site plan and subdivision review process.

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C. Public Education

The Nashua School District currently operates sixteen (16) school facilities within Nashua that provide education for grades kindergarten through 12. The current grade configuration of Nashua’s school system is as
There is currently a proposal to modify this grade configuration in the near future to better distribute Nashua’s students among the space available at each grade level, as well as to better meet their educational needs. This proposal would shift 6th grade students to the Middle / Junior High level, and 9th grade students to the High School level. This move is projected for the 2004 – 2005 school year. The rationale for this proposal will be discussed later in this section.

In 2000, there were 12 elementary schools with a total enrollment (October 1, 2000) of 7,811, 3 Middle Schools with a total enrollment of 3,117, and 1 High School with an enrollment of 2,740.

Table VI – 1 illustrates some of the most important characteristics of each school. This table will be referred to repeatedly during the following discussion. The location of these schools, and the current configuration of the elementary and middle school districts, is presented in Map VI - 2. The red upper case letters are abbreviations for the elementary schools.

Map VI-2 School Districts

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1. **Elementary and Middle Schools, current situation**

   Over the last two decades, enrollments at the elementary and middle school level have skyrocketed. From the fall 1980 to fall 2000, enrollment at the elementary level grew 43% from 5,476 to 7,811 students. During the same period, enrollments at the middle school level (grades 6 – 8) increased 13% from 2,749 to 3,117. The 7,811 students at the elementary level represent 57% of the 13,668 students currently enrolled in the Nashua school system. The 3,117 students
at the middle school level represent 23% of Nashua’s public school students, with the remaining 2,740, or 20%, at Nashua Senior High School. As seen in the enrollment projections in Table VI - 2 and discussed in Section C. 3., a. Enrollment Trends and Projections, enrollment at the elementary level is expected to slowly decline over the next few years, while enrollment at the middle school level is projected to increase for several years before gradually declining.

As expected during a period of rapidly growing enrollments, most of Nashua’s elementary schools, all of the middle schools, and the high school are over-capacity at the present time. Many have added portable classrooms and converted special purpose rooms into general classrooms in order to provide adequate instructional space.

There are two measures of capacity related to school function: Current Operating Capacity and Planned Operating Capacity. Current Operating Capacity is based on the current usage of the building and includes portable classrooms and all current classroom space, even space converted from a more specialized program (such as art) to general use. Planned Operating Capacity is based on recommended class size policy, the elimination of portable classrooms, and the inclusion of appropriate core and special use areas for art, music, athletics, and other special programs that are part of a comprehensive educational package. In this Master Plan, Planned Operating Capacity is considered the more important measure, and is treated as a figure to strive for in school facility planning. The figures provided in Table IV - 1 for both measures were calculated by the New England School Development Council (NESDEC), engaged by the Nashua School District to conduct a study and make recommendations for the School.
District’s future needs. The table reflects enrollment for the 2000-2001 school year.

It should be stated at the outset that the Nashua School District strives to provide the best possible education for Nashua’s students, and has undertaken numerous improvements and expansions at various schools throughout the City. Nonetheless, the rapid growth of the City and the concomitant increase in school-aged children has lead to a situation where overcrowding is the norm, and where programs and facilities are being stretched to the limit. According to the NESDEC report, most of the elementary and middle schools are in fairly good physical condition, although improvements are needed at several, as described in recent capital improvement project requests. A description of these requested projects is beyond the scope of this Master Plan, but can be found in the City’s Capital Improvements Program (CIP), many under the heading of “deferred maintenance.”

As seen in Table VI - 1, most of the elementary schools exceed their current operating capacity. Two schools have current enrollments that are close to their current operating capacity; Main Dunstable and Sunset Heights. Both Elm Street and Pennichuck junior highs also have current enrollments close to their current operating capacity.

However, when current enrollments are compared with planned operating capacities, a very different picture emerges. Every school in the Nashua public school system exceeds its planned operating capacity, some by a wide margin. At the elementary level, the most overcrowded schools in terms of planned operating capacity (POC) are Fairgrounds Elementary, which exceeds its POC by 32%, Ledge Street Elementary, which exceeds its POC by 34%, Mt. Pleasant Elementary, which exceeds its POC by 21%, and Charlotte Avenue Elementary, which exceeds its POC by 17%. At the middle school level, Elm Street Junior High exceeds its POC by 18%, Fairgrounds Junior High exceeds its POC by 14%, and Pennichuck Junior High exceeds its POC by 15%.

When enrollments are broken down by quadrant at the Elementary School level, all quadrants exceed the POC. The Southeast Quadrant exceeds the POC by 23.2%, followed by the Southwest at 10.5%, the Northwest is at 8.8%, and the Northeast is the lowest at 4.6%. The Southeast Quadrant is comprised of Fairgrounds, Ledge Street, Sunset Heights, and Dr. Crisp Elementary. Fairgrounds and Ledge Street Elementary exceed Current Operating Capacity by 200 or more students at each school.

The Nashua school district would ideally like to have a maximum of 23 students for grades 1-2 and a maximum of 25 students for grades 3-12. There are some exceptions in which the number would be less, especially in specialty courses such as vocational education. As of September 5, 2001, there were 55 elementary classrooms in the Nashua School District with more than 25 students.

As seen in Table VI - 2, enrollments at the elementary school level are projected to start decreasing in the near future. Therefore, overcrowding at this level should decrease somewhat over time. Peak enrollment at the middle school level is still several years out, and as a result overcrowding at the middle schools should persist for several more years. The Nashua School District’s plan for redistributing the grade levels amongst the schools is described later in this Element.

**TABLE VI - 2**
**NASHUA SCHOOL ENROLLMENTS: 1980 – 2000**
**and PROJECTIONS: 2001 – 2006**

<table>
<thead>
<tr>
<th>SCHOOL YEAR</th>
<th>ELEMENTARY *</th>
<th>JUNIOR HIGH *</th>
<th>HIGH SCHOOL *</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980 - 81</td>
<td>5,476</td>
<td>2,749</td>
<td>2,658</td>
<td>10,883</td>
</tr>
<tr>
<td>1981 - 82</td>
<td>5,296</td>
<td>2,664</td>
<td>2,744</td>
<td>10,704</td>
</tr>
<tr>
<td>1982 - 83</td>
<td>5,142</td>
<td>2,620</td>
<td>2,554</td>
<td>10,316</td>
</tr>
<tr>
<td>1983 - 84</td>
<td>5,075</td>
<td>2,750</td>
<td>2,635</td>
<td>10,460</td>
</tr>
<tr>
<td>1984 - 85</td>
<td>5,003</td>
<td>2,795</td>
<td>2,618</td>
<td>10,416</td>
</tr>
</tbody>
</table>
According to the NESDEC study, the School District’s most pressing need at present is addressing repairs, maintenance, and overcrowding at Nashua Senior High School. The High School’s current enrollment is 2,740, and is projected to reach 3,117 by the 2005 – 2006 school year. The planned operating capacity of the High School is 2,553. The school is thus 7.3% over capacity now, and would be 22.1% over capacity by 2005 – 2006, except for plans as detailed below.

In addition to the overcrowding issue, the current High School building is in urgent need of major maintenance and repairs. The School was built in 1974, with many shortcomings due to an inadequate construction budget, and has had minimal improvements since. Specific needs include:

- Updating mechanical, electrical, and safety systems, including adding a sprinkler system.
- Improving the infrastructure, including instructional spaces, air quality, and deteriorating athletic facilities.
- Updating technology infrastructure to allow students to access the Internet, etc.
- Updating vocational / technical education facilities/ equipment.

In order to address both overcrowding and the physical improvements needed at the existing High School, the Nashua School District is undertaking a comprehensive, two-pronged High School project. One aspect of the project will be making the needed improvements and additions to the existing High School. The additions will total 60,000
square feet, bringing the current High School to a total of 414,000 square feet. The improvements and additions are planned for completion by September 2004.

The larger of the two projects will be the construction of a new, 422,100 square foot High School at the location of the former Brox gravel pit operation off Broad Street. The new High School North is planned for completion for the 2002-2003 school year. The total estimated cost for both projects, excluding land acquisition, is $135 million. In September of 1999, the Board of Aldermen approved $135 million in funding for these projects. At the present time, the State of New Hampshire reimbursement rate for school construction is generally 30% of the principal cost. The State may also be able to issue the City a $23 million reimbursement for the vocational education center improvements at both high schools.

3. Future School Facility Needs

a. Enrollment Trends and Projections

Before a needs assessment for the Nashua school system can be undertaken, it is important to examine past enrollment trends and projections for the future. As previously mentioned, the current grade configuration for the three major education levels is: Elementary, grades K – 6; Middle School or Junior High School, grades 7 – 9; and Senior High School, grades 10 – 12. This configuration differs from that of in many other municipalities, where High School is grades 9 – 12 and Junior High School is grades 6 – 8.

As seen in Table VI - 2, in 1980 there were 5,476 students at the elementary level, 2,749 at the Junior High level, and 2,658 students at the High School level, for a total of 10,883 students in the public school system. By 2000, the total number of students in the system increased by 19.5%, for a total of 13,521 students. Elementary enrollments jumped in 1988 when public Kindergarten was instituted.

In May 1997, the Nashua School District hired the New England School Development Council (NESDEC) to conduct a study and prepare a report on projected school enrollments and available instructional space with respect to current and future educational needs. NESDEC used a cohort survival method to project school enrollments to the 2005-2006 school year. These projections are presented in Table VI – 2 in the last five rows. At the elementary level, NESDEC projects enrollments will gradually decline after the peak year of 2000-2001, due to falling birthrates and the slower immigration rates in the 1990’s as compared to previous periods. In relation to birth rates, NESDEC reports:

“The number of births to residents peaked during the five years between 1987 and 1991, with an average of 1,441 annual births to residents during that period. The five-year average of 1,254 between 1992 and 1996 indicates a decrease of 15% in births. There has been a steady decline in the number of births during this period, with 1,342 births in 1992 and an estimated 1,188 births in 1996. As a result of the decline in the number of births, elementary enrollments are projected to decline as these children move through the school system. It is assumed that births will be in the 1,210 – 1,220 range over the next five-year period.”

NESDEC made other assumptions in projecting school enrollments. These are important to note, as a change in any one assumption could dramatically change the resultant projections. These assumptions are:

- Births to Nashua residents will level off and be within the 1,210 – 1,220 range for the next 5 years.
- About 35% of children will attend non-public kindergarten or daycare.
- There will continue to be a small net out-migration (between .5 – 2%) as a class moves from grades 2 – 8.
- Housing growth will be similar to that of the last five years, or 120 – 160 new homes per year.
- About 3% of ninth grade students will attend a non-public high school.
At the middle school or Junior High level, NESDEC projects enrollments will increase, peak, and then drop off during the ten-year period. As seen in Table VI - 2, the peak year for middle school enrollment is projected to be 2001-2002, with 3,202 students. At the High School level, NESDEC is projecting enrollments will continue to increase, peaking around 2005 – 2006. These projections are based on 1996 – 1997 enrollment data and are updated yearly, and are subject to change. Interestingly, the total number of students at all grade levels is seen to peak in the 2000-2001 school year.

Thus, a test of NESDEC’s assumptions and projections should be possible in the very near future. It should be noted that these projections are based on a continuation of the current grade configuration at the various grade levels. When grade 9 moves to the High School and grade 6 moves into the Junior High, the projections for those levels will need to be revised accordingly. Such internal shifting of students will not affect the total number of students in the system.

b. Meeting Future Educational Needs

As alluded to previously, the Nashua School District plans to redistribute several grade levels amongst the schools in the near future. This should alleviate overcrowding at the elementary level, and enable the portable classrooms to be removed. Overcrowding will continue at the middle / junior high school level for several years. Additional space will be needed at the middle / junior high school level to alleviate this overcrowding and eliminate portable classrooms. The target year for grade redistribution is the 2004 – 2005 school year. At that time, the new High School will have been occupied for two years, and renovations and repairs to the existing High School will have just been completed. The plan is to move grade 6 (currently at the elementary level) to the middle school / Junior High level, and grade 9 (currently at the middle school / Junior High level) to the High Schools. This will bring Nashua into conformance with the grade configuration found in most U.S. school systems.

School Department operating costs will increase as a result of the new High School. Operating costs at the new school are estimated at approximately $3.9 million per year. Of that, approximately $1.6 million would be needed for additional staff including a principal, assistant principal, secretaries, librarian, nurse, and additional teachers; and $2.3 million would be needed for maintenance and utility costs.

Since space will be freed up at the elementary level due to the grade redistribution, there may no longer be a need for an additional elementary school in the southwest quadrant to accommodate new growth. However, should rezonings to higher density occur for the remaining developable land, it is possible, although not probable, that a new elementary school may be needed. Therefore, it is imperative that the School District and Board of Education continue to monitor the City’s growth and revise enrollment projections on a regular basis, so that future facility needs are anticipated long before they become urgent.

c. Private Schools in Nashua

Mention should be given to the private / parochial schools in Nashua. There are two Catholic elementary schools: Catholic Junior High School and Catholic Senior High School. A relatively small percentage of Nashua’s school-aged children attend these schools. The combined Nashua enrollment at Infant Jesus and St. Christopher’s elementary schools as of October, 2000, is 487 students, or 6% of all elementary students in the City. In addition, the World Elementary School off Spit Brook Road has 59 students enrolled in grades 1-6 and 54 children in the Kindergarten program. Nashua Catholic Junior High School enrolls 336 students from Nashua, or 10.7% of middle school level students in the City. Bishop Guertin High School has 314 students enrolled from the City of Nashua; 230 of those students are enrolled in grades 10-12, or approximately 8% of high school students in the City.

As these are private / parochial schools, tuition is the responsibility of the family. These schools have low enrollments relative to Nashua’s public schools, which limits the number of Nashuan’s who can enroll at them. However, the existence of these educational options for all grade levels is desirable for a City the size of Nashua.
D. Nashua Public Library

The current Nashua Public Library opened in 1971 and is located at Two Court Street at the north end of the downtown. Previously, the library was located in the Hunt Building on top of “Library Hill.” The Hunt Building, one of Nashua’s premier historic and cultural buildings, is briefly discussed later in this Element in section II.E.2.

Map VI-3 shows the location of Community Facilities, including major City-owned properties and private facilities, many of which are discussed in this Community Facilities Element.

The facility at Two Court Street is comprised of a core section and two wings, for a total of 60,000 sq.ft. The Nashua Public Library (NPL) is a full-service library, and not only stocks books and periodicals, but functions as a community center, as well. Currently, approximately 1,500 meetings are held in the library each year. The library is one of the most visited buildings downtown with about 1,200 people visiting per day, which amounts to 11% of all downtown pedestrian traffic (as of the mid-1980’s, when the survey was taken).

The face of information technology is rapidly changing; gone are the days when libraries could stock only books, reference materials, and periodicals and be considered “current.” The importance of computers and software to the library industry has increased exponentially in the 1990’s, and libraries are struggling to keep pace. The NPL has moved towards a multi-media system, including a library web site, electronic card catalog, and internet services. Automation of the card catalog and other library functions is currently being pursued. An electronic / on-line card catalog will bring the NPL up to current standards in information technology. Automation will also permit innovative customer services such as a Patron Interest Profile, basically an augmented library card. Bar codes on library cards would identify the patron’s preferences (fiction, science, business, etc.) and a scan of the card would let the patron know which new releases are available in their areas of interest. Also, a linkage with the public library is needed with the public school libraries to improve accessibility to information.

The East Wing expansion is the major, current library improvement. Under this plan, the existing fiction collection would be moved to the new section to free up space for a rapidly expanding non-fiction collection. The new wing might include a “coffee house,” similar to that at the large bookstores in south Nashua. The library is considering expanding its evening and weekend hours to accommodate the needs of working families.

In general, library circulation has grown steadily over the years. Circulation during the 1980’s was fairly steady, and then increased substantially, from approximately 550,000 in 1989, to a peak of approximately 700,000 in 1992. Circulation has since dropped to late-1980’s levels. Library officials attribute this to several factors: the growth and availability of the internet, including on-line book stores like Amazon.com; the arrival of large, full-service book stores in Nashua; and a demand for more varied non-print media. According to library officials, these factors underscore the importance of automation and expansion of the library’s collection to include more electronic media.

In June 1998, the NPL produced a Master Plan for the Nashua Public Library, which lists ten principal recommendations:

- Increase funding / develop alternatives to spending cap/ trust funds/ grants.
• Automate circulation and catalog functions.
• Complete East Wing expansion and basement shelving area.
• Expand print collection.
• Expand electronic information access.
• Extend library hours to 11 p.m. M – F, and on Sundays from 1 – 9:00 p.m.
• Accommodate new Nashuans via programs and new materials, especially for Latinos and Asians.
• Develop a more skilled and versatile staff via in-service training, workshops and library science courses.
• Utilize professional demographic and marketing tools to better match library collection / services to the needs of the community.
• Hire professional polling organizations to ascertain the level of community support for library services.

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E. City Government

1. Nashua City Hall

Nashua’s present City Hall is located at 229 Main Street and was constructed in 1938. Originally comprising 42,474 sq.ft, additions in 1980 and 1987 added 7,772 square feet, bringing the current City Hall to 50,246 square feet.

At one time, the Nashua City Hall housed the Police Department and the District Courthouse. The Police Department relocated to its present facility on Panther Drive in 1978, and the District Courthouse moved to the Walnut Street Oval in 1978-79. Nashua City Hall presently houses the following divisions / departments: Mayor’s Office, Legislative Office, Administrative Services, including Financial Services, Treasurer, Tax Collector, City Clerk, Human Resources, Risk Management, Assessing, Purchasing, and Management Information Services, Community Development Division, and the administrative and engineering offices of the Public Works Division. As of 2001, there were 143 employees at Nashua City Hall.

Nashua City Hall also provides several meeting spaces for City boards and commissions. Meeting spaces include the Aldermanic Chambers and Room 208 on the 2nd floor, an auditorium on the 3rd floor (meeting space for the Planning Board, Zoning Board, and special meetings), and several smaller conference rooms scattered throughout the building.

Many offices in City Hall are currently overcrowded, and several sections of the building have air quality problems. To remedy overcrowding, a City Hall Space Needs Assessment has been proposed. A comprehensive renovation package that includes a new or repaired air circulation system, elevator repairs, and other minor improvements has also been proposed.

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2. Miscellaneous City-owned Buildings and Facilities

The City of Nashua owns two significant buildings in the downtown. The first is 14 Court Street building. This 33,000 square foot building was built in 1870, and was originally known as the “Nashua Arts and Science Center.” Currently the building’s main tenant is the American Stage Festival, which holds a winter program of plays and performances in the building. The American Stage Festival sub-leases space to various fine art and performance groups. Parking is a major concern for 14 Court Street; the building has no associated parking. Fourteen Court Street is currently the largest City-owned building designated as an arts center, and thus is a valuable City resource.
The second significant City-owned building is the Hunt Memorial Library Building, one of Nashua’s premier architectural treasures. It was designed by the famous Gothic revival architect Ralph Adams Cram. Construction of the building was completed in 1903. The Hunt Memorial Library Building functioned as the City’s public library from 1903 – 1971, when the current library at Two Court Street was opened. It served as the Nashua school district’s administration building from 1971 to 1989. Today the building is managed by a board of trustees, and serves as a cultural and community facility. In recent years, the Hunt Building has been used for lecture series and many other cultural and community events. The building needs structural and interior repairs, which are being conducted under the oversight of the Hunt Building Restoration Committee. The Hunt Memorial Library Building is one of Nashua’s gems, one that will most likely be used more intensively in the future. Its restoration is part of the larger effort to restore Railroad Square. This effort is discussed in the downtown section of the Land Use Element.

F. Community (Health) Services

The Health and Community Services Division in Nashua is comprised of five departments: Environmental Health, Nashua Mediation Program, Public Health, the Office of Child Care Services and the Welfare Department. The Division is headquartered at 18 Mulberry Street, a building that is reaching its capacity in terms of the number of people it can serve and the programs it provides. The five Departments / Programs operated by the Health and Community Services Division are briefly described below:

1. Environmental Health Department

The Environmental Health Department enforces all laws and ordinances intended to protect the public from harmful environmental conditions. Among the services provided by the department are: inspection and licensing of food service establishments, inspections and sampling of public swimming pools and spas, lead paint and asbestos abatement programs, environmental assessment of proposed subdivisions, hazardous and toxic waste investigations, and inspection of day care facilities and foster homes. The Department also investigates complaints in the following areas: solid waste, housing, indoor air quality, animals and insects. Occasionally, seminars are provided on food service sanitation, pools and spas, or other environmental health concerns, as needed.

2. Nashua Mediation Program

The Nashua Mediation Program specializes in conflict resolution and violence prevention for both individual families and the community at large. It provides communication and mediation training for families, schools, and organizations, and other crisis intervention and violence prevention initiatives.

3. Public Health Department

The Public Health Department provides services in the areas of child health, communicable diseases, and prevention education. The Department is active in child health screening, health education and disease control and prevention programs such as immunizations, lead screening, tuberculosis programs, sexually transmitted disease
prevention and treatment, including HIV/AIDS and other serious diseases. The Department works collaboratively with other agencies.

4. Office of Child Care Services

The Office of Child Care Services engages the public and private sectors to increase access to affordable, quality childcare by providing:

- Resource and referral information for parents.
- State/local licensing information and technical assistance to child care providers and employers.
- Liaison services between providers and state and local agencies.

5. City Welfare Department

The City Welfare Department assists Nashua residents who, either temporarily or permanently, are unable to support themselves by providing the following services:

- Emergency aid for such basic necessities as food, rent, utilities, and medications.
- Referrals to local, state, federal, and private programs for long-term assistance.
- Provide health maintenance items such as diapers, shampoo, and paper goods.

When federal and state welfare services are reduced, the local level increasingly serves as the “safety net” for those in need. Cutbacks at the federal and state level are limiting the amount of time families can be on welfare, and once that period has elapsed, many are still in need of assistance, which the local City Welfare Department is mandated to provide. As a result, the demand for local welfare services is likely to increase over the next few years. Given financial constraints at the local level, it remains to be seen how much of a “safety net” the City Welfare Department will provide in the years ahead.

Current and Future Trends and Challenges

There are several trends and facility issues that may affect the Public Health Division over the next several years. First, 18 Mulberry Street is presently at capacity. There is very little room to serve additional clients and provide the range of services that the Division is currently providing. A space needs assessment should be provided.

Second, the City’s population is becoming more ethnically diverse. The City’s Latino population, in particular, has grown over the last decade. The 1990 Census indicated that 1,785 people, or 2.2% of the City’s population of 79,662, spoke Spanish as their primary language. By 2000, the Hispanic community more than doubled, with a 124% increase for a total population of 5,388. The Asian population (3,363) also increased by 121% between 1990 and 2000. For calendar year 1998, 40% of those using Public Health services were Latino. As a result of their changing clientele, the Division has had to hire additional bilingual employees.

The third trend is towards increased efficiency and centralization of health care services. In the public health field, the measurement of outcomes is increasingly important. In Nashua, there are several agencies and hospitals that provide services similar or identical to those provided through the Health and Community Services Division.

In order to comprehensively address public health care delivery in Nashua, the Community Services Division, St. Joseph’s Hospital, the SNHMC, Rivier College, Partnerships for Healthier Communities, the Neighborhood Health
Care Center of Greater Nashua, and the local United Way are participating in the Turning Point Initiative (TPI), which has become the Greater Nashua Healthy Community Collaborative. The local TPI is part of a wider national effort provided through the W.K. Kellogg Foundation, to encourage the efficient delivery of public health care and improve infrastructure. The local TPI is engaged in a study of health care delivery by the above agencies, and made recommendations as to how health care delivery could be streamlined to avoid duplication of efforts and ensure that all those in need of health care services receive proper access to care.

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G. Other Facilities

1. The City’s Main Hospitals and Medical Facilities

a. St. Joseph’s Hospital

St. Joseph’s Hospital is located at 172 Kinsley Street in Nashua. It is one of two major hospitals in Nashua; the other is Southern New Hampshire Medical Center (formerly Memorial Hospital). The existing St. Joseph’s Hospital was built in 1967, with an addition completed in 1980. The main hospital is supplemented by two medical office buildings, the first built in 1983 and the second in 1991, and a School of Nursing, built in 1945 with an addition in 1994. There is a 260-space parking garage attached to both the Hospital and office buildings. The Hospital leases 140 parking spaces at the St. Joseph’s rectory site on Lake Street for employee parking.

The square footage of the major components of the St. Joseph’s Hospital complex: Main hospital, 250,000; School of Nursing, 47,000; two medical office buildings, 35,000 each, 70,000 total; and the parking garage, 160,000. The current hospital site covers approximately 14 acres. The hospital plans to purchase an additional 6.3 acres from St. Joseph’s Church on Lake Street, which would most likely continue to function as a parking area for hospital employees.

St. Joseph’s Hospital employs approximately 800 people at the main hospital, and an additional 500 people at several satellite health care facilities in Nashua, Hudson, Milford, Merrimack, and Amherst. St. Joseph’s is a full-service hospital, and specializes in cancer treatment, breast care, and cardiac programs.

The hospital is located in a residential zoning district (RB), and the Chief Administrator reports that this situation has hampered the ability of the hospital to expand. Any expansion would be a non-conforming use, which requires Zoning Board of Adjustment approval. The 40% open space requirement of the RB zone has also required the hospital to seek dimensional variances for its recent expansions. There are several medical offices and medical related businesses located in the immediate vicinity of the hospital, most of which are in the RB zone. Given the concentration of medical uses centered on the hospital, it may be worthwhile for the City to consider a “medical arts zoning district” for this area, which would include hospitals and medical offices as its primary permitted by right land uses. Such a district could also be applied to the area surrounding the Southern New Hampshire Regional Medical Center, which is the next topic of discussion.

b. Southern New Hampshire Medical Center (SNHMC)

The Southern New Hampshire Medical Center (SNHMC) is located at Eight Prospect Street in downtown Nashua. The main hospital building is located between Main Street, Spring Street, Dearborn Street, and Prospect Street. The larger hospital “campus” includes medical office buildings and a 510-space parking garage close to the main hospital. The original hospital, known as Memorial Hospital, was built between 1913-1915. The hospital has been steadily expanding since, and changed its name to the Southern New Hampshire Medical Center in 1998. The main hospital building is 285,760 square feet, with 124,500 square feet of medical and administrative offices within the main campus area off of Spring Street, Tyler Street, Dearborn Street, Prospect Street, and Main Street. The main
SNHMC can accommodate 188 overnight patients. In addition, SNHMC operates a family practice in south Nashua (2,000 sq.ft.), and an office at 5 Coliseum Avenue (2,422 sq.ft.). SNHMC also has a presence outside of Nashua, and operates satellite clinics and facilities in Amherst, Merrimack, and Milford.

SNHMC employs 1,212 people at its main campus, or 887 full-time equivalents. 339 people are employed at its satellite facilities, or 297 full-time equivalents. SNHMC is a full-service hospital which specializes in dialysis treatment, cancer treatment, pulmonary care, behavioral health, dermatology, cardiac rehabilitation, and neo-natal intensive care. In addition, it has the only in-house, fixed-site magnetic resonance imaging (MRI) facility in southern New Hampshire. Interestingly, 60% of all births in Nashua occur at SNHMC.

Future expansion plans include a 20 – 24,000 sq.ft. expansion of emergency services, the birthing center, and surgical support services. In addition, the hospital may pursue an additional 275 – 300 parking spaces through a combination parking structure/surface lot off Spring Street. SNHMC anticipates this expansion project will take from three to five years.

As was recommended for St. Joseph’s Hospital, it may be worthwhile for the City to consider a “medical arts zoning district” for the central campus area of SNHMC. In this case, the area between Spring Street, John Street, Tyler Street, Dearborn Street, Prospect Street, and Main Street would constitute the area to be considered for a “medical arts district.” Most of this area is currently in the Central Business / Mixed Use District, which does not pose the same degree of difficulty as for a hospital located in a residential district. Nonetheless, it may make sense for the City to consider such a new zoning district for the area centered on its two main hospitals, St. Joseph’s and the SNHMC.

A Hospice house was recently constructed and has been housing patients in the last few months. Home, Health and Hospice, a non-profit agency in Nashua, initiated the idea of a hospice house that is located in Merrimack, N.H.

Eldercare resources include Meals on Wheels, a home-delivered food program. Nashua also has a senior Activity Center located on Temple Street. Servicelink is an organization working out of Community Council that serves as a resource to the elderly for solving care issues.

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2. The Federal Aviation Administration

As one drives north on the F.E. Everett Turnpike in Nashua, a large facility with many antennas and radar units to the west of the Turnpike is evident. This complex is the Federal Aviation Administration’s (FAA) Boston Air Route Traffic Control Center (ARTCC). Originally located at Logan Airport, the Boston ARTCC was relocated to Nashua in 1963 as part of an effort to disperse such facilities away from major cities in the event of nuclear attack.

Today, the ARTCC in Nashua has thirty radar positions, a Traffic Management Unit, a National Weather Service Unit, six staff offices, and seven technical operations units. Although not all these positions operate continuously, air traffic control services are provided twenty-four hours per day, 365 days of the year. The ARTCC covers 165,000 square miles of airspace, and employs approximately 280 air traffic controllers. The Boston ARTCC’s area of control overlies all of the New England states, most of New York state, extreme northwestern Pennsylvania, and ocean waters 200 miles off the Atlantic coast to 67 degrees west longitude.

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3. Nashua Airport

One of Nashua’s most important assets is the Boire Field Airport. The Nashua Municipal Airport, as it was
then called, was opened in 1935. In 1945 it was renamed Boire Field in honor of Lt. Paul Boire, the first Nashua pilot killed in World War II.

Since it opened, the airport runway has been extended four times, from its original 2,000 feet to its present 5,500 feet. Other airport improvements have included construction of a full-length parallel taxiway, installation of an approach lighting system, and various other improvements. Over the years the number of hangars increased to accommodate increased usage. The Nashua Airport Authority was created by an act of the general court of the State in 1961 to supervise the airport’s growth. Boire Field Airport currently covers approximately 400 acres.

Boire Field is classified as a general aviation airport, which means it services air taxi, business, corporate and private aircraft, and helicopters. It cannot function as a commercial passenger airport. The proximity of the Manchester Airport and Logan Airport in Boston render commercial operations at the Nashua a moot point, since the Nashua Airport would not be able to compete with these airports. Perhaps Boire Field’s most significant function is educational. There are presently four flight schools using the airport, including the Daniel Webster College flight school and Keyson Academy of Flight. Approximately 60% of the airport’s traffic volume is student / training related. Only 3% of the airports traffic volume consists of private jets. Propeller planes cannot simultaneously use the runway when jets are taking off or landing.

The most significant capital projects planned for Boire Field over the next ten years include taxiway lighting and perhaps a parallel runway. The parallel runway is intended to be used primarily as a training runway. Aircraft traffic volumes have now reached the point that training operations on the one runway have had to be curtailed somewhat. The parallel runway will permit simultaneous operations for 97% of the airport’s traffic (excluding jet traffic) volume. Student use of the parallel runway will not be allowed to occur when jets are taking off or landing on the main runway.

The Nashua Airport Authority recently commissioned an economic impact study of the Airport by the American Association of Airport Executives (AAAE). This study found that in 1999, the Boire Field Airport had a total positive economic impact of $21,528,940. Approximately $5.5 million of that is direct spending by the airport and fixed-based operators, $4.7 million is due to transportation savings for Nashua citizens, and $11 million is induced or secondary benefits (economic multiplier effect) due to re-spending in the local economy. As the report states, “Every dollar spent at the airport has a multiplier effect in the form of jobs, earnings and increased demand for ancillary services.” Over the next five years, the total economic benefit of the airport is projected to be $131,436,334. The Boire Field Airport is clearly an important transportation and economic asset to Nashua. The consulting firm of Hoyle and Tanner recently completed a master plan update for the airport in May 2000.

4. Higher Education Facilities

Daniel Webster College is located at 20 University Drive off Pine Hill Road in Nashua, and provides associate and bachelor degree programs in highly specialized fields. Degree programs include aviation operations, aeronautical engineering, computer science, information systems, engineering science, as well as several management programs, accounting and general studies. The air traffic management major is one of only 13 programs in the nation that are recognized by the FAA as part of the Collegiate Training Initiative. The college was founded in 1965 and has approximately 1,100 students. There are 15 buildings on campus, including residence halls, classrooms, and fitness / recreational facilities. The Eaton-Richmond Center opened in 1999 and is home to the 350-seat Collings Auditorium that is suitable for lectures, theater, music, and dance productions.

Franklin Pierce College is a four-year, liberal arts college. The main campus located in Rindge, New Hampshire, serves those who wish to enroll in a traditional, residential college setting. There are six satellite campuses, including the campus in Nashua located at 20 Cotton Road off of Amherst Street / Route 101-A. The Nashua campus opened in 1983. Currently there are 275 students enrolled in undergraduate, graduate, and certificate programs at the Nashua campus. The Nashua campus offers a Master of Business Administration in Leadership degree
as well as ten bachelor degree programs, six associate of arts degree programs, and several certificate programs. The largest major is in the Bachelor of Arts in Management program. Approximately 25% of students are enrolled in this major. The fastest growing major is in the area of computer science. The Teacher Certification Program is also one of the most popular programs offered at the Nashua campus.

Hesser College was founded in 1900 in Manchester, New Hampshire. The main campus relocated to Nashua in 1983. The single building houses 14 classrooms and labs. Approximately 500 full and part-time students currently attend Hesser College’s Nashua campus. The college offers day, evening, and weekend courses, with over 30 associate and bachelor degree programs. In 1998, the college became a Microsoft authorized academic training program institution, and new programs in computer information technology will meet student and employer needs for the greater Nashua area.

New Hampshire Community Technical College (NHCTC) is located at 505 Amherst Street. The College was opened in 1970, and its campus consists of two main buildings. The college specializes in technical education, including business administration, computer science, health and human services, and a wide variety of specialized technology training. Current (1999) enrollment is 1,252 students. The College projects enrollments to grow by 5 – 6% over the next few years. NHCTC is currently engaged in a strategic planning process to identify the College’s needs and plan for its long-term future.

Rivier College located at 420 S. Main Street was founded in 1933. The Nashua campus consists of 43 buildings on 68 acres and is the oldest higher learning institution in the City. The College offers over 60 programs that lead to an associate, bachelor or master degree through day and evening courses. There are approximately 2,700 students enrolled; 1,686 are full-time. Housing is available in three residence halls on campus for 300 students. Known as a liberal arts college, Rivier College offers degree and certificate programs in education, business, computer science, and nursing, as well as many other areas of study.

As was recommended for the areas in the vicinity of the City’s medical facilities, it is recommended that a special zoning district or sub-district be considered for the areas around the City’s college campuses. Such a district should at least be considered for the neighborhood of Rivier College, which is located in the R-9 residential district. As that college expands it may come into conflict with the surrounding residential neighborhood. Issues as parking along residential streets and homes being converted into college offices and accessory buildings have already been raised in this area. Nashua may do well to consider how other college towns, such as Keene and Durham, have addressed land use issues and zoning around their campuses.

Nashua’s other colleges are located in industrial or commercial zoning districts, and thus present fewer land use conflicts. Nonetheless, if this issue is to be studied in a comprehensive manner, then all campuses should be assessed.

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III. SUMMARY

A. Summary

For the most part, the City’s community facilities are in good condition and provide first-rate services to Nashua’s citizens. The private facilities, including hospitals, colleges, and private medical facilities, are also for the most part first-rate. All these facilities contribute to Nashua’s high quality of life. The City is also fortunate to have its own general aviation airport, which contributes up to $22,000,000 annually to the regional economy. However, all these facilities must be adequately maintained, and expanded when necessary or appropriate to meet increases in demand. There so many City-owned and private facilities in Nashua that it is not possible to summarize all of them here, but the following summaries are provided for departments and facilities which are undergoing major changes, or will require major capital improvements over the next few years.
1. Fire Department

Now that the new Lake Street Fire Station has been constructed, the relocation of the Arlington Street Station is currently the Fire Department’s highest priority long-term project. The station is over 70 years old, and there is no room for expansion on the site. If a new station is built, the old station would be turned over to the City for another municipal use. The current Arlington Street station is located close to both the Merrimack River and the City boundary, which effectively reduces its value to the City by nearly 50%. Relocating this station further west would enable service to be extended in all directions.

2. Nashua School District

The Nashua School District will complete a second High School at the former Brox parcel off Broad Street by September 2002. The construction of a second High School will enable the School District to undertake other facility and programmatic changes. One of the most important changes planned is the redistribution of several grade levels amongst school facilities. This grade reconfiguration should lessen overcrowding at the elementary level, and may reduce the number of portable classrooms and/or reduce classroom size. Overcrowding will continue to exist at the middle / junior high school level for several years. Additional space will be needed at the middle / junior high school level to alleviate overcrowding and portable classrooms. The target year for grade redistribution is the 2004 – 2005 school year. At that time, the new High School will have been occupied for two years, and renovations and repairs to the existing High School will have just been completed. The plan is to move grade 6 (currently at the elementary level) to the middle school / Junior High level, and grade 9 (currently at the middle school / Junior High level) to the High Schools. This will bring Nashua into conformance with the grade configuration of most United States school systems.

3. Items for Further Study

   a. Medical Arts Zoning District

      Given the concentration of medical uses around both City hospitals, it may be worthwhile for the City to consider a “medical arts zoning district” that included the hospitals and medical offices as its primary, permitted-by-right land uses.

   b. Higher Education Facilities / Campus Zoning District

      A zoning district similar to the Medical Arts Zoning District suggested above may be suitable for the areas surrounding the City’s college campuses. Both of these zoning changes would require a detailed feasibility study.
VII. UTILITIES AND PUBLIC SERVICES

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VII. Utilities And Public Services Element
I. Introduction

A. Purpose

In any city, aspects of daily life that are unseen or unnoticed may be among the most important. For instance, a reliable supply of clean drinking water may be taken for granted until a water ban is instituted, or the water supply becomes contaminated. The sewer system may be “out-of-sight and out-of-mind” until a water main breaks and traffic must be detoured around the broken line, or until a federal mandate requires the costly separation of stormwater from wastewater flows. Electricity may be taken for granted until the power goes out. And the landfill may be taken for granted until it reaches capacity and the municipality must seek other waste disposal options. All of these matters come under the general heading of infrastructure, and master plans must examine the current status and likely future need for the various types of infrastructure in a city.

New Hampshire statute, RSA 674:2, requires master plans to include a “utility and public service section analyzing the need for and showing the present and future general location of existing and anticipated public and private utilities, their supplies and distribution and storage facilities.”

This element of the Nashua 2000 Master Plan will examine the following utilities and public services:

- Electricity: Public Service of New Hampshire
- Natural Gas: KeySpan
- Telecommunications
- Water Supply: Pennichuck Water Works
- Sewer System and Wastewater Treatment Plant
- City Landfill

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B. Goals, Objectives and Recommendations

GOAL: Provide high quality public services, facilities, and infrastructure support for both existing and future residents and businesses in the City.

1. OBJECTIVE: CITY SEWER SYSTEM/WASTEWATER TREATMENT FACILITY

Meet the wastewater needs of Nashua’s citizens and businesses while making the most efficient use of the sewer system and wastewater treatment facility.

Recommendations:

a. Require developments to pay their fair share of sewer line extensions and improvements.
b. Develop a comprehensive plan for the maintenance and expansion of the sewer system and the Wastewater Treatment Facility (WWTF).
c. Review the City’s existing septic and well regulations, with assistance from the Health Department, to see if any revisions are needed to protect landowners and the environment in those areas that rely on individual septic systems.
d. Address combined sewer overflows (CSOs), such that no untreated wastewater enters the Nashua and Merrimack rivers.
e. Monitor the capacity of the WTF and plan for plant expansion if the situation warrants.
f. Stay on track with the Enterprise Fund projects designed to modernize the plant and make it more efficient.
g. Develop a long-term sewer rehabilitation / replacement program to address aging and damaged sewer lines.

h. Plan all infrastructure improvements comprehensively, taking road improvements, sidewalks, non-motorized modes of transportation, street tree plantings, water lines, sewer lines, natural gas lines, electrical service and cable TV service into account when doing any road work or other infrastructure improvements.

2. OBJECTIVE: PENNICHUCK WATER WORKS/WATER DISTRIBUTION

Work closely with Pennichuck Water Works to ensure superior water quality and service that meets the long-term needs of residences, businesses, and industries in the City.

Recommendations:

a. Provide adequate water volume and pressure throughout the area served in order to meet fire safety requirements and the needs of residences, businesses, and industries.

b. Promote conservation of the Pennichuck watershed to protect water quality and quantity.

c. Plan all infrastructure improvements comprehensively, taking road improvements, sidewalks, non-motorized modes of transportation, street tree plantings, water lines, sewer lines, natural gas lines, electrical service and cable TV service into account when doing any road work or other infrastructure improvements.

d. Assure that Nashua’s long-term water needs will be met as part of Pennichuck Water Works long-term plans.

3. OBJECTIVE: NATURAL GAS DISTRIBUTION

Promote the use of this relatively clean burning fuel and ensure the efficient distribution of natural gas lines in the City.

Recommendations:

a. Plan all infrastructure improvements comprehensively, taking road improvements, sidewalks, non-motorized modes of transportation, street tree plantings, water lines, sewer lines, natural gas lines, electrical service and cable TV service into account when doing any road work or other infrastructure improvements.

b. Allow commercial or industrial uses to generate their own electricity only after considering and mitigating effects on surrounding land uses.

4. OBJECTIVE: SOLID WASTE/RECYCLING/FOUR HILLS LANDFILL

Secure Nashua’s ability to manage its solid waste in a financially and environmentally sound manner over the next 20 or more years, and establish a foundation that will ensure Nashua’s ability to use the most appropriate waste disposal solutions at all times.

Recommendations:

a. Conserve existing and future landfill space.

b. Provide adequate trash and recycling services to all City residents.

c. Foster, encourage and educate citizens regarding recycling.

d. Develop a program to encourage businesses to recycle.

e. Maximize the control and flexibility the City has over long-term decisions and costs.

f. Meet Federal and State regulations.

g. Satisfy the solid waste hierarchy, as detailed in RSA 149-M.

h. Include a cost-effective financial solution to waste disposal that is both long-term and equitable.

i. Maximize the City’s ability to consider all viable solid waste management technologies in the future, such as waste-to-energy, municipal solid waste composting, and others.

5. OBJECTIVE: COMMUNICATIONS/TELECOMMUNICATIONS
Work with the telecommunications industry to improve the telecommunications infrastructure, and make state-of-the-art, wide-band technology available to citizens, the business community, and schools. Such actions will ensure that Nashua is fully competitive with other areas of the country seeking high technology business growth.

**Recommendations:**

a. Provide and/or improve access to high speed, wideband telecommunications.

b. Provide and/or improve access to other communications technology as it becomes available (i.e. fiber optics, etc.…)

c. Plan all infrastructure improvements comprehensively, taking road improvements, water lines, sewer lines, natural gas lines, electrical service, and cable TV service into account when doing any road work or other infrastructure improvements.

d. Form a Telecommunications Task Force to investigate solutions to Nashua’s telecommunications needs.

**II. PUBLIC SERVICE OF NEW HAMPSHIRE**

Southern New Hampshire’s electricity is provided by Public Service of New Hampshire (PSNH). PSNH supplies electricity to the entire City of Nashua. PSNH reports that they anticipate being able to supply electricity to a fully built-out Nashua.

PSNH’s infrastructure includes two types of power line: transmission and distribution lines. Transmission lines transmit power from the generating plants to transmission and distribution substations. Nashua is served by both 115,000 volt and 34,500 volt transmission lines. These lines are normally constructed on rights-of-way.

Distribution lines, which are placed along roadways, carry power throughout the City. In Nashua, these lines operate at voltages ranging from 4,160 to 34,500 volts. These voltages are stepped down to the voltage utilized in homes and businesses by transformers typically mounted on poles along the roadway.

There are two major substations in Nashua where the power is stepped down from 115,000 volts to 34,500 volts. One is located off Bridge Street near the confluence of the Nashua and Merrimack Rivers; the other is located in the Long Hill area. Emanating from these substations are 34,500 volt lines which loop around, as well as through, the City. They terminate at a substation off Broad Street on the western side of the City. In addition to these, there are other 34,500 volt lines connecting to substations in the towns of Milford, Hudson, Merrimack, and Amherst.

**III. KEYSPLAN**

In Nashua, natural gas lines are under the ownership and control of the KeySpan Corporation. As with the electrical transmission system, there is a hierarchy of lines in the high-pressure gas line system. Six-inch lines are the major arteries, with 4-inch lines acting as sub-arteries, and 2-inch and smaller lines serving as distribution lines to homes and businesses.

KeySpan has stated that they can and will meet the natural gas needs of the City of Nashua for the foreseeable future. As part of their planning process, they routinely incorporate plans from local developers and State and community agencies such as the New Hampshire Department of Transportation, economic development agencies, and
local public works and planning departments. KeySpan uses information from the above-mentioned agencies to
determine the required capacities of their systems and coordinate with City projects in order to minimize disruption of
local streets when gas line work is undertaken.

**IV. TELECOMMUNICATIONS INFRASTRUCTURE**

Nashua's ability to attract, generate, and retain businesses will increasingly depend upon the availability of
adequate information infrastructure to support the needs of these companies. This requirement will largely translate
into the availability of high bandwidth connections to the Internet, both for industrial and commercial areas where
these companies are located, and in residential areas where their employees are located. These two requirements differ
primarily in demand level, and therefore in the technology required to meet them, and generate a third requirement,
that of adequate bandwidth to the City/region as a whole.

The requirement for adequate bandwidth is one that major carriers will need to address with fiber optic, wired
and wireless connections into the region. Nashua should undertake an assessment of the existing carriers and
bandwidth, and promote the improvement of this infrastructure if it is deemed insufficient. The City can promote this
infrastructure investment by working with carriers to site such infrastructure improvements, for example by working
with the State to allow the addition of fiber in the right-of-way of the Turnpike. Massachusetts is currently undertaking
similar projects along Interstate 495.

The distribution of bandwidth to sites within the City will require two sets of improvements. To promote the
availability of such bandwidth to industrial and commercial sites, the City should assess and promote the availability of
distribution infrastructure with the various providers. This approach must be sufficiently general as to allow for
existing technologies such as ISDN and T1 lines, and allow rapid response to emerging technologies.

The same guiding principles apply to residential development; however, an added complication in the existing
technologies gives rise to a specific area that should be investigated. Currently, the City's cable TV franchisee is able
to provide high bandwidth residential connections over its cable infrastructure. There are, however, competing
technologies such as Digital Subscriber Lines (DSL) that offer advantages in some cases, which are difficult to provide
to large areas of the City. DSL facilities generally require equipment to be housed in the local telephone company
central office and within 17,000 to 20,000 feet of the subscriber property. The distance of central office facilities to
some outlying areas makes DSL unfeasible. These areas are also the sites of many new, high-end residential
properties, where demand for such services is high.

The distribution problem could be addressed through zoning. There is currently no provision to allow for the
construction of remote equipment facilities in a cost-effective way. Often the equipment for such distribution can be
housed in small utility sheds that are not staffed, and are similar to water pumping stations in their physical attributes.
However, Nashua's current zoning does not allow for such construction, which would be on small lots, often with very
small frontage. Flagstaff lots would be ideal for these applications because they tend to hide the utility infrastructure
from the street. Any change to accommodate this should be carefully balanced with the desire to make such facilities
aesthetically consistent with the surrounding community, and to ensure that such non-standard lots would not become a
problem if the use was discontinued. Within that balance, consideration should be given to allowing the consideration
telecommunications infrastructure facilities in the same way that utility infrastructure facilities are considered.

**V. PENNICHUCK WATER WORKS**
Nashua’s water supply and distribution system is provided by and under the regulated control of a private company, the Pennichuck Water Works (PWW). PWW obtains its water from the Pennichuck Ponds, which are impoundments of Pennichuck Brook, which forms the northern border of Nashua with Merrimack, and from a one million gallon per day yield well located in the Bon Terrain Business Park in Amherst. Additionally, some water is obtained from the Merrimack River for summer use during times of peak demand. All water is treated at Pennichuck’s treatment plant located off Concord Street in northern Nashua. From this plant, water is distributed throughout the City.

Map VII-1 Water Service Coverage Map

Map VII – 1 depicts PWW’s service area, which covers most of Nashua except parts of the southwest and northwest quadrants, and a small section west of the F.E. Everett Turnpike and east of the residential neighborhoods off East Dunstable Road. The area between Buck Meadow Road, Conant Road, and Searles Road, which is currently being developed as a medium-density (1.5 units per acre) flexible use residential / commercial area will be supplied with Pennichuck water. It is the policy of PWW to extend water service as needed, and as required through decisions of the City’s Planning Board, which may require as a condition of approval that new subdivisions be supplied with “public water.” Though many homes in the southwest corner of the City presently rely on private wells, as major development moves into the area, PWW anticipates that it will eventually supply the entire area with water. Of course, if development is less than anticipated, or occurs at a very low density, then the extension of Pennichuck water to certain areas may not be justified.

How does the current and projected supply and demand for water compare to Nashua’s current and projected population? The company’s water treatment plant has a current treatment capacity of 35 million gallons per day (MGD). Average daily demand during the peak summer months is approaching 18 MGD and peak day demands approach 24 MGD. PWW’s projections, which are based on population projections by the Office of State Planning and the Nashua Planning Department, indicate that the average daily demand in the summer is projected to increase to 20 MGD over the next 20 years (2018). Peak day demand is projected to increase to 28 MGD. If additional water is required to meet future demand, PWW’s first course of action is the construction of a third pumping unit at the Merrimack River intake. If additional water from the Merrimack River should prove inadequate to meet future demand, PWW has identified several ways in which their water supply could be augmented to meet demand. These options include:

- **Increase withdrawals from the Merrimack River**: If permitted by the Army Corps of Engineers and the New Hampshire Department of Environmental Services (NHDES).

- **Construct additional wells in the Bon Terrain wellfield in Amherst, New Hampshire**: This would potentially allow for the addition of 2 – 3 MGD.

- **Construct additional wells on Pennichuck property near Pennichuck Pond in northwest Nashua**: PWW notes that “The aquifer near Pennichuck Pond is extensive and well protected by company-owned property. The potential for the development of a series of gravel-pack wells is excellent. It is undetermined whether withdrawals from wells at this point would result in a reduction in the safe yield of the Pennichuck Brook system.”

- **Acquire new well development property along the Nashua River**: This area is also underlain by an extensive aquifer, but the company would need to purchase additional properties or secure easements to safeguard these properties from development.
- Purchase water from Manchester Water Works.

It is the goal of this Master Plan that Pennichuck Corporation’s primary responsibility be the conservation of our limited water resources through their own initiatives and through public education.

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A. Water Quality Issues

As mentioned in the Water Resources section of the Natural Resources Element, the Pennichuck Brook system is beginning to suffer from eutrophication. Pennichuck Water Works Watershed Management Plan (1998) documents how extensive residential, commercial, and industrial development in Nashua and elsewhere in the watershed has degraded the water quality of the Pennichuck Brook system, largely due to non-point source pollution (urban runoff) from impervious surfaces such as roads and parking lots. Impervious surfaces prevent the natural recharge of groundwater, and increase the amount of unfiltered stormwater reaching the ponds and brook. This urban runoff carries pollutants and excess nutrients, usually in the form of phosphorous, to water bodies, which accelerates eutrophication. Total imperviousness of the entire watershed is estimated at 15%, and studies indicate that water quality degradation begins to occur at approximately 10% imperviousness. In Nashua, the Boire Field Brook subwatershed, which includes the Nashua Airport and much of the Route 101-A commercial corridor, is estimated to be 36% impervious. The land uses with the highest degree of impervious cover are industrial, commercial, and high density (less than ½ acre lots) residential. In Nashua, 11% of the land abutting the ponds and streams is zoned high density residential, 36% is zoned industrial, and 6% is zoned commercial. In order to minimize future water quality degradation, it is vital that land use decisions in the watershed recognize the connection between land use and water quality.

The Pennichuck Water Works Management Plan lists many recommended actions for the watershed municipalities and the utility to consider in addressing the top ten problems that PWW has identified in the watershed. Those that are pertinent to Nashua are summarized below by topic:

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1. Stormwater Flows
   - Require that post-development runoff equal pre-development runoff.
   - Minimize parking lot impacts by using permeable dividers, street buffer strips and appropriate landscaping.
   - Reduce transportation impacts of new subdivisions by using narrower streets with grass swales.
   - Use on-site infiltration whenever possible.
   - Use clearing and grading plans that minimize site disturbance, require grading plans, erosion control plans and inspect progress during construction.
   - Minimize lawn sizes, encourage the use of native species for landscaping wherever possible and leave native vegetation in place as a buffer.

2. Minimal Protective Zones
   - Require adequate buffer zones around sensitive water resources and wetlands.

3. Pond Eutrophication
• Determine sediment depths in each of the ponds and dredge as needed to provide sedimentation capacity. This capacity will help protect the water supply and other downstream resources from development impacts (Note: this recommendation pertains to PWW).

4. Transportation System Impacts

• Work with the Public Works Departments and the State Department of Transportation to avoid the direct piping of runoff into streams and instead use infiltration technologies such as grassed swales and leaching catch basins. Work with watershed Fire Departments to address spill issues.

5. Hot Spots of Pollution Sources

• Use infiltration controls at specific locations within the watershed where problems have been identified.
• Follow up on the status of hazardous waste sites in the watershed and request action timetables.
• Provide special educational materials to service stations, car dealerships and automotive and other repair shops because of their potential to create major water quality impacts.

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VI. NASHUA WASTEWATER TREATMENT FACILITY AND THE CITY SEWER SYSTEM

A. Nashua Wastewater Treatment Facility

The majority of Nashua's residences and businesses are connected to the City's sewer system. As seen in Map VII – 2, the sewer service area covers most of Nashua, except portions of the northwest and southwest quadrants. The developed parts of the southwest quadrant are on City sewer, while the rural southwest corner relies on septic systems for domestic wastewater disposal. All City sewerage is treated at its wastewater treatment facility (WTF) located on the banks of the Merrimack River below its confluence with Salmon Brook. This discussion of Nashua's sewer system will begin with the WTF.

Map VII-2 Sewer Coverage Map

Nashua's WTF came on-line in 1961 in response to the Clean Water Act requirements for wastewater treatment. Initially only a primary treatment plant (removal of solids), the WTF was expanded in 1988 for secondary treatment, which involves secondary aeration, besides primary treatment. The primary plant has a greater treatment capacity than the secondary plant, up to 52 million gallons per day (mgpd) for maximum flows, as opposed to 38 mgpd for the secondary plant. Since the older section of Nashua is served by a combined wastewater / stormwater system, these peak flows often occur during and shortly after heavy rainfalls. The WTF cannot treat peak flows for an extended period, however. The optimal peak for sustained treatment, or average daily flows, is 16 mgpd for the secondary plant.

Recent yearly averages for daily flows are 11.3 mgpd in 1995, 16.1 mgpd in 1996, 14.8 mgpd in 1997, and 12.7 mgpd in 1998. The secondary plant of the WTF was operating at approximately 79.4% of its maximum capacity for average daily flows in 1998. There is presently 2.0 – 3.0 mgpd of additional secondary treatment capacity at the WTF. In 1994, the estimated additional capacity was 4.7 mgpd. The decrease in capacity down to 2.0 – 3.0 mgpd is largely
attributable to failing sewer lines and infiltration of stormwater into the system.

This fact underscores the importance of the City’s combined sewer overflow (CSO) separation project. To protect the City’s water sources, storm water needs to be properly treated (grassed swales, infiltration) before entering waterways. The CSO project, which will remove the stormwater component from sewage flows, will take approximately 20 years to complete. The area with combined sewer and stormwater flows is centered on the inner city (see Map VII - 3). Most of the sewer lines in this area were installed prior to regulations prohibiting combined sewer / stormwater lines. The Superintendent of the WTF estimates that positive impacts from the CSO project will not be felt for several years. Eventually, if the project succeeds in separating stormwater flows from sewer flows to the maximum extent possible, wastewater flows into the plant could be reduced by 10 – 15%.

Map VII-3 C.S.O. Project Area

Additional infiltration into the existing interceptors absorbs plant capacity and decreases available groundwater in the watersheds. Interceptors need to be corrected and a plan needs to be implemented that will repair and maintain the interceptor system.

This assumption is based on the City’s current population and extent of development. However, the Superintendent noted that projected development at build-out may take up most of this freed-up capacity, resulting in little or no change over present conditions and capacities. If such is the case, then a built-out Nashua would just meet the treatment capacity of the WTF. The mix of future land-uses will be a large factor in determining future WTF capacities. Certain industries are very water intensive. Examples include food processing plants, beverage and bottling operations, laundromats, and printed circuit board manufacturing. Otherwise, manufacturing industries in the City only account for approximately 500,000 gpd.

At present (1999), the estimated percentage of total wastewater flow from various land-uses in the City is as follows:

- Commercial: 5%
- Industrial: 7%
- Residential: 65%
- Infiltration / Other: 23%

To calculate an estimate of City-wide waste-water generation at build-out, it is necessary to apply water usage multipliers to the various land-uses under consideration. These are as follows, and were supplied by the superintendent of the WTF, based upon industry standards.

- Single-family homes: 100 gpd/ person
- Multi-family dwellings: 50 – 75 gpd/ person
- “Average” industrial / office: 20 gpd/ person
- “Average” retail / comm.: 20 gpd/person
- Schools: 15 gpd/ pupil

Next, these multipliers were applied to the build-out estimates. As mentioned in the Demographic Element and the Future Land-Use Plan, a range will be given for the residential component of build-out:

- Single-Family homes: 1,000 – 1,400
- Multi-family dwellings (units): 75 – 150
- Retail / Commercial: 640,000 sq.ft., 1 employee per 500 sq.ft.
- Industrial, R & D,
To be conservative, it shall be assumed that there is an average of 3 persons per single-family household, and 2.3 persons per multi-family household. For the low end of the range, the multipliers will be applied to 1,000 single-family units and 75 multi-family units. For the high end of the range, the multipliers will be applied to 1,400 single-family units and 150 multi-family units. When the math is done, the low end of the range, including non-residential land uses, comes out to an additional wastewater load of 500,600 gpd. The high end of the range is 627,787 gpd. Using 2.5 mgpd as the present additional capacity at the WTF, the low end of the range represents 20% of the additional capacity, while the high end of the range represents 25% of additional capacity.

The Superintendent believes that as long as the City continues with the CSO project and works to alleviate inflow and infiltration, the WTF can meet the City’s wastewater demands, without plant expansion, for the next 20 years.

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B. Nashua’s Sewer System

As seen on Map VII – 2, the majority of Nashua’s development is served by the City’s sewer system. Of Nashua’s total 20,534 acres (which includes highways and water bodies), 14,834 acres, or 72%, of the City land area was within the sewer service area. In total, Nashua has approximately 400 miles of sewer lines, of which approximately 100 miles, or 25%, is combined sewer. Development occurring outside of the serviced area must rely on septic systems. Less than 5% of the City’s population relies on septic systems.

The sewer-serviced area of Nashua is divided as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>Acres</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>8,374</td>
<td>56%</td>
</tr>
<tr>
<td>Commercial</td>
<td>777</td>
<td>5%</td>
</tr>
<tr>
<td>Industrial</td>
<td>1,675</td>
<td>12%</td>
</tr>
<tr>
<td>Institutional</td>
<td>3,017</td>
<td>20%</td>
</tr>
<tr>
<td>Recreational</td>
<td>992</td>
<td>7%</td>
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<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>14,834</strong></td>
<td></td>
</tr>
</tbody>
</table>

There are various levels of sewer lines, ranging from small lines that serve individual subdivisions, to the main interceptors that convey collected wastewater to the WTF. The four major interceptors are the North Merrimack interceptor, the Nashua interceptor, the Salmon Brook interceptor, and the South Merrimack interceptor.

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VII. SOLID WASTE DEPARTMENT AND THE FOUR HILLS LANDFILL

The Division of Public Works Solid Waste Department is responsible for the collection of trash, recycling and soft yard wastes from most residences in Nashua. The Department also operates the Four Hills Landfill (from
hereafter, "the Landfill"), a 286-acre site opened in 1970. The Landfill is located at 840 West Hollis Street in the southwest quadrant, just south of West Hollis Street and north of Gilson Road. The site also incorporates the Nashua Recycling Center; a landfill gas-to-energy plant; a yard waste composting operation; a cellular tower; and a training area for the Nashua Fire Rescue.

Approximately 90,000 tons of waste from Nashua’s residences and businesses are disposed at the Landfill each year. A development project that is underway at the Landfill will extend the life of the facility for at least twenty years. Nashua is one of the few remaining municipalities that owns and operates a landfill. Many communities throughout the country have used up their landfill capacity, and must rely on private or regional waste solutions that usually cost far more in annual operating expenses than a landfill. The Solid Waste operation is an Enterprise Fund, which is financed through tipping fees from commercial haulers.

The new landfill will be constructed in three phases. Phase I has been completed and will provide the landfill with approximately 900,000 million cubic yards of capacity. Phases II and III will add on the order of 3 million cubic yards at the lined landfill. The older unlined portion of the landfill is nearing capacity and the capping process has begun; closure of the entire section will be complete in 1-2 years. Low-interest loans from the State of New Hampshire help to finance the construction and closure projects.

The landfill gas-to-energy operation is based on a public-private partnership between the City and Minnesota Methane to capture the methane generated by the waste decomposition process and convert it on-site to electricity for sale to regional utilities. The Landfill’s methane collection system will be extended to the new lined portion of the landfill.

The Solid Waste Department provides separate curbside collections for trash (weekly), recyclables (bi-weekly), and soft yard wastes (seasonal, weekly) for residences on public streets. Other residents may drop off recyclables at the Nashua Recycling Center, where plastic and aluminum containers are baled, and newsprint, cardboard and glass are aggregated for shipment to end-users. Soft yard waste is composted in windrows on site and used primarily for the construction projects. The Department also provides weekly appointment-based pickup for residents’ metal appliances, such as stoves and refrigerators, as well as the collection of both trash and recyclables at public schools and public buildings.

The Solid Waste Department hosts the regional Household Hazardous Waste / Small Quantity Generator Waste Collection and Storage Program. Monthly events during warm seasons are coordinated with the Nashua Solid Waste Management District for eleven communities; the District contracts with a qualified vendor, now Clean Harbors Environmental, to collect, manage and dispose of the wastes. The City’s program was the first in the State to provide service for businesses that have limited amounts of hazardous wastes.

The City has embarked on a major effort to properly close and manage old landfill sites and improve the public parks located near them. The Multi-Site Parks Restoration is a three-year, five million dollar project that involves the proper closure of five former landfills and the enhancement of park facilities at these sites. The Solid Waste Department within the Division of Public Works is heading up this effort.

The Solid Waste Department is clearly taking innovative and necessary steps to extend the life of the Landfill, improve the efficiency of operations, expand recycling, and protect the environment. These efforts will have the effect of extending the life of the Landfill beyond what it would have been without these programs and latest technologies.

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VIII. SUMMARY

Overall, the City of Nashua is in a good position relative to the provision of utilities and public services. Public
Service of New Hampshire reports they will be able to meet Nashua’s electricity needs well into the foreseeable future. KeySpan reports the same for their provision of natural gas in the City. Pennichuck Water Works likewise anticipates being able to meet Nashua’s demand for water into the foreseeable future. In the event that the supply of water from the Pennichuck Pond system isn’t adequate to meet the City’s needs at a certain point in the future, PWW has identified several options by which their water supply could be augmented to meet demand.

However, it must be mentioned that water quality in the Pennichuck Brook system is beginning to suffer from runoff-induced eutrophication. This is due to the high degree of imperviousness of many of the system’s subwatersheds (particularly along Route 101-A in Nashua, Merrimack, and Amherst), and in the greater watershed. In order to minimize future water quality degradation, it is vital that land-use decisions in the watershed recognize the connection between land-use and water quality. The recently adopted Water Supply Protection Ordinance (1999) should help to ensure that future development and redevelopment uses best management practices designed to minimize watershed impacts.

The City will need to continue the exploration of addressing our combined sewer overflow issues. A fully built-out Nashua may come close to using up all available treatment capacity. Therefore, it is imperative that the WTF closely monitor its treatment efficiency and capacity over the next several years. Particularly water intensive industries (such as bottling plants) may place an undue burden on the WTF, and should therefore be closely monitored. At some point in the future, the City may need to consider prohibiting extremely water intensive land uses if the treatment capacity of the WTF is threatened.

The soon to be opened lined portion of the landfill will have a life span of at least 20 years from its date of opening. For the foreseeable future, in any case, Nashua will be able to meet its solid waste disposal needs. The City should begin to develop a plan of action for the day when the landfill reaches capacity and other waste disposal options must be exercised.

Perhaps the most urgent infrastructure need facing the City involves telecommunications. The City lacks access to the most current telecommunications infrastructure, such as wide-band fiber optic lines. In order for Nashua’s present and future industries to be fully competitive, the City’s telecommunication network should be upgraded to current industry standards.
VIII. ECONOMIC DEVELOPMENT ELEMENT

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VIII. ECONOMIC DEVELOPMENT ELEMENT

I. INTRODUCTION

A. Preface

This Economic Development Element of the Nashua 2000 Master Plan will provide a general overview of the City’s economy, and provide suggestions for maintaining and enhancing the City’s economic health. It is not intended to replace comprehensive studies such as the 1991 Mt. Auburn Associates study Nashua at the Crossroads: a Strategic Plan for the Future, or the 1995 Spiral Group study prepared for the City; The Gate City 2001: A Marketing Strategy for Nashua. Those two studies are comprehensive, and although some of their recommendations may no longer be valid, they are the most recent economic studies that the City has commissioned. This Element cites findings and recommendations from both studies, when appropriate.

The City of Nashua is blessed with a healthy and diverse economy that has demonstrated resiliency over the years. There will inevitably be recessions and economic downturns in the future, but the effects of such downturns can be minimized through planning that encourages a diverse economy and supports suitable business activity. Suitable business activity complements, rather than detracts from, the overall mix of businesses in the City, and is compatible with nearby land uses.

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B. Goals, Objectives and Recommendations

GOAL: The City shall promote a balanced and sustainable approach to economic development that is consistent with the wider goals and objectives of the Nashua 2000 Master Plan, as well as the economic viability of the City as a whole.

1. OBJECTIVE: BUSINESS/ECONOMIC DEVELOPMENT GENERALLY

Increase the number and quality of businesses in the City of Nashua and the greater Nashua area by attracting select, international and out of state growth businesses and promote existing business retention.

Recommendations:

a. Add to the tax base by attracting businesses that will create high quality jobs without overburdening present services
b. Define and target segments and market these desirable businesses
c. Diversify economic development in order to minimize the effects of cyclical economic downturns.
d. Provide a supportive environment for retention and expansion of existing businesses.
e. Foster dialogue between business and schools to promote education in areas of likely economic development.
f. Improve telecommunications, transportation and other City infrastructure.
g. Support the adaptive re-use of older industrial buildings through ordinance changes.
h. Study the appropriate mix of commercial and industrial development.
2. **OBJECTIVE: COMMERCIAL DEVELOPMENT**

The City shall take actions to promote the health and visual quality of its commercial zones, which greatly contribute to the economic well being of the City.

**Recommendations:**
   a. Revise billboard and sign ordinances for better appearance, maintenance, compatibility and compliance.
   b. Provide adequate shopping and service opportunities for under-serviced populations.
   c. Review the commercial site landscaping provisions of the zoning ordinance and update if deemed necessary. Special emphasis should be placed on ensuring adequate buffers between non-compatible land-uses.
   d. Update the commercial land-use definitions in the Nashua Revised Zoning Ordinances.
   e. Encourage infill development within, and work to revitalize existing commercial areas.
   f. Enhance existing commercial areas with improved landscaping, aesthetics, signage, nighttime light pollution, architectural design, traffic flow and coordination with abutting land-uses whenever the opportunity presents itself.
   g. Ensure adequate buffers between all commercial development and abutting non-commercial land-uses.
   h. Conduct a comprehensive study of the City’s zoning ordinance and site plan regulations as they pertain to commercial development, and revise as needed.
   i. Minimize the traffic congestion and conflicts that often accompany commercial development by careful attention to traffic issues and cross access easements in the site plan review process.

3. **OBJECTIVE: RETENTION OF EXISTING ECONOMIC BASE**

The City shall not only work to attract high quality new industries and commercial growth, but retain and enhance its existing economic base.

**Recommendations:**
   a. Invest in the City’s long-term economic resource base.
   b. Stop the loss of jobs in the community by strengthening the existing business base and diversifying the economy of the region.
   c. Develop new cooperative relationships in the region to direct, promote and implement economic development activities.

4. **OBJECTIVE: ECOLOGICALLY SUSTAINABLE ECONOMIC DEVELOPMENT**

Nashua’s economic growth should be based on industries and businesses that incorporate the principals of sustainability into their operations, and which respect and enhance Nashua’s environment and quality of life.

**Recommendations:**
   a. Guide commercial and industrial development to the existing built areas of the city and minimize development in outlying, undeveloped areas.
   b. Remediate and redevelop Nashua’s brownfield sites in order to bring about positive environmental and economic change.
   c. Encourage the development community and financial institutions to support infill development generally and re-development of brownfield sites in particular.
   d. Encourage and support businesses that reduce employee and product-related vehicle trips.
   e. Encourage and support businesses that are working to reduce dependence on fossil fuels and other non-renewable resources.
5. **OBJECTIVE: NASHUA AIRPORT/BOIRE FIELD**

The City shall recognize the benefits that a prosperous municipal airport provides the community by working to ensure its continued success and long-term viability and facilitate actions that enable adequate services to be provided to its aeronautical operators.

**Recommendations:**

a. Undertake recommended capital improvement projects that provide for more efficient, modernized and safe airport operations.

b. Acquire identified properties in the runway clear-zones.

c. Approve adequate visual and noise separation between the airport and nearby residential uses.

d. Balance airport needs with quality of life of nearby residents.

6. **OBJECTIVE: DOWNTOWN**

The City shall continue and increase its revitalization efforts to ensure that downtown Nashua is a safe, clean, attractive, and accessible urban center that serves as the community’s premier social, cultural, recreational, educational and economic marketplace.

**Recommendations:**

a. Develop a concept design and implementation plan for downtown.

b. Develop a program that encourages property owners and citizens to take pride in and preserve Downtown’s Historic Resources.

c. Enhance access parking to the east side of Main Street.

d. Make the downtown into a livable environment, a destination for recreation, entertainment, and educational and cultural enrichment.

e. Support efforts that will aid the downtown riverfront in reaching its maximum potential.

f. Promote the downtown as an attractive living place for those wanting a high quality urban lifestyle.

g. Promote focused public-private partnerships whose goal is to improve the overall quality of downtown Nashua.

h. Recognize the value of maintaining a mix of employment opportunities and enterprises in the downtown, with an emphasis on the professional fields.

i. Pursue locating an institution of higher learning into downtown.

j. Expand the vitality of the downtown by expanding retail activity east and west of Main Street, including the Millyard area.

k. Develop and nourish a partnership with building owners to create a vision/plan and take necessary steps for making the plan a reality.

l. Pursue a location for a performing arts center for downtown.

m. Encourage public and private arts.

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**II. NASHUA’S ECONOMY: A HISTORICAL PERSPECTIVE**

Nashua is located at the confluence of the Merrimack and Nashua rivers, and historically was a regional economic and employment center. The rivers provided the City with power and and shipping access. Nashua, like Manchester, Lawrence, and Lowell, became an industrial powerhouse. Until the 1960’s, textile and leather products industries were the primary sources of employment and products. However, by the late 1940’s, new production methods, higher costs, and relocation of many industries to the south began took a toll on the City’s economy.

In the mid-1960’s, the F.E. Everett Turnpike was completed, thereby improving access to and from the greater
Boston market. This allowed Nashua, with its available land and favorable tax position, to tap into the Research and Development and Electronics firms growing up around Route 128 outside of Boston.

During the 1970’s, Nashua experienced a doubling of manufacturing employment that, in turn, caused an even larger increase in non-manufacturing jobs. This so-called “multiplier effect” of manufacturing jobs maintains that every job in the manufacturing sector helps to sustain several jobs in non-manufacturing sectors, and Nashua was the beneficiary of a robust manufacturing economic base. The tremendous manufacturing growth in Nashua between 1972 and 1985 was primarily in high-tech areas. Two companies, Digital Equipment Corporation and Sanders Associates, accounted for half of all jobs created during this period. During this period, the area experienced low unemployment, high wages, rising population, and a job creation rate that far outpaced that of the State and Nation. During the first half of the 1980’s, half of all the jobs in the City were manufacturing ones.

By 1988, the percentage of people employed in manufacturing decreased to 36% (although there were actually more people employed in manufacturing in 1988 than 1980), but the City’s economy continued to expand, driven largely by commercial and residential development. In several sectors, such as construction, finance, real estate, services, and retail trade, there were significant employment gains between 1987 and 1990. Meanwhile, the true economic engine, manufacturing, was declining fast. In 1987, 19,212 people were employed in manufacturing, in 1988 the number dropped to 17,163, in 1989 to 15,055, and in 1990 the number of people employed in manufacturing dropped again to 13,764. The annual loss of 2,000 manufacturing jobs for three years in a row could not be made up in other areas, and the repercussions were felt in the area’s economy.

There were several reasons for this downturn. First, there was a national decline in manufacturing as manufacturing jobs went (and continue to go) abroad to countries with lower wages and weaker regulations. Second, the crumbling of the Berlin Wall contributed to cutbacks and downsizing in the defense industry. Third, the computer industry shifted from mainframes and minicomputers to personal computers, which led to downsizing in that industry at that time. The downsizing in defense and computers accounted for approximately 15% of layoffs in the Nashua area in the 1987-1992 recession. Downsizing also occurred due to mergers and acquisitions throughout the business world. Finally, the economic growth of the 1980’s spurred development that did not stop as the general economy turned, leading to an oversupply of new development.
In Table VIII - 2, the mean assessed value of various land uses and residential building types in 1999 is presented. The mean assessed value of all residential properties is $112,631; for all commercial properties the mean is $675,514; and for all industrial properties the mean assessed value is $1,096,853. The average single-family home is valued at $126,144.

### TABLE VIII-2

#### MEAN ASSESSED VALUES

<table>
<thead>
<tr>
<th>Mean Assessed Values</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USE TYPE</strong></td>
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<tr>
<td>Residential</td>
<td>$112,631</td>
</tr>
<tr>
<td>Commercial</td>
<td>$675,514</td>
</tr>
<tr>
<td>Industrial</td>
<td>$1,096,853</td>
</tr>
<tr>
<td>Utilities</td>
<td>$898,770</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$164,315</strong></td>
</tr>
<tr>
<td>Single-family</td>
<td>$126,144</td>
</tr>
<tr>
<td>2 -4 family</td>
<td>$96,735</td>
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<tr>
<td>5 + family</td>
<td>$719,770</td>
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<tr>
<td>Condo</td>
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<td>Res. Open Land</td>
<td>$31,948</td>
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<tr>
<td>Man. Housing</td>
<td>$27,849</td>
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</tbody>
</table>

In Figure VIII – 1, the size and economic strength of Nashua as compared to other towns in its PMSA can be seen. The most recent year for which numbers for all the towns can be obtained is 1997. Nashua has since surpassed
the $4 billion mark for total assets. The City’s assets are worth roughly three times those of any other town in the PMSA. However, Figure VIII – 2 shows that although Nashua has assets far exceeding other towns in the PMSA, its tax rate is competitive.

**FIGURE VIII – 1**

**TOTAL EQUALIZED VALUATIONS IN THE NASHUA PMSA**

**FIGURE VIII – 2**

**EQUALIZED TAX RATES IN THE NASHUA PMSA**

Click to return to the top of the Economic Development Element

**B. Economic Sectors and Employment Profile**

In 1998, Nashua had approximately 53,000 workers, slightly more than three-quarters of which were in manufacturing (25%), retail trade (22%), or services (30%). The service industry is a broad one that includes: health, education, legal, engineering, accounting, research, management, business and social services, hotels and other lodging, restaurants, amusement and recreation services, personal services and various repair services.
Table VIII – 3
1998 EMPLOYMENT, CITY OF NASHUA

<table>
<thead>
<tr>
<th>S.I.C. GROUP</th>
<th>TOTAL EMPLOYMENT</th>
<th>NUMBER OF EMPLOYERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>207</td>
<td>30</td>
</tr>
<tr>
<td>Construction</td>
<td>1,124</td>
<td>142</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>13,281</td>
<td>172</td>
</tr>
<tr>
<td>Trans., Comm., Utilities</td>
<td>1,829</td>
<td>63</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>2,310</td>
<td>358</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>11,768</td>
<td>521</td>
</tr>
<tr>
<td>F.I.R.E.</td>
<td>2,723</td>
<td>196</td>
</tr>
<tr>
<td>Services</td>
<td>15,802</td>
<td>1,015</td>
</tr>
<tr>
<td>Government</td>
<td>4,017</td>
<td>25</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>53,061</strong></td>
<td><strong>2,522</strong></td>
</tr>
</tbody>
</table>

Table VIII – 4 depicts the rise and fall, and subsequent stabilization, of manufacturing in Nashua. The first year in the table shows Nashua’s dominance in manufacturing, when over 50% of all jobs were in that sector. The peak was in 1984 with 50.74% and 21,778 employees. In 1987, there began a steady decline in the number of people employed in manufacturing that did not reverse until 1993. Since 1993, although the percentage of manufacturing employment has remained about the same, over 2,000 new manufacturing jobs have been created. For a more in-depth discussion of manufacturing, please refer to the Chapter IX. Industrial Element of this Master Plan.

Table VIII – 4
EMPLOYMENT, CITY OF NASHUA

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Manufacturing</th>
<th>Non-Manufacturing</th>
<th>% Manufacturing</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>17,032</td>
<td>16,889</td>
<td>50.21%</td>
<td>33,921</td>
</tr>
<tr>
<td>1981</td>
<td>17,976</td>
<td>18,013</td>
<td>49.95%</td>
<td>35,989</td>
</tr>
<tr>
<td>1982</td>
<td>17,974</td>
<td>18,182</td>
<td>49.71%</td>
<td>36,156</td>
</tr>
<tr>
<td>1983</td>
<td>19,055</td>
<td>19,249</td>
<td>49.75%</td>
<td>38,304</td>
</tr>
<tr>
<td>1984</td>
<td>21,778</td>
<td>21,145</td>
<td>50.74%</td>
<td>42,923</td>
</tr>
<tr>
<td>1985</td>
<td>21,698</td>
<td>22,831</td>
<td>48.73%</td>
<td>44,529</td>
</tr>
<tr>
<td>1986</td>
<td>19,671</td>
<td>26,080</td>
<td>43.00%</td>
<td>45,751</td>
</tr>
<tr>
<td>1987</td>
<td>19,212</td>
<td>28,415</td>
<td>40.34%</td>
<td>47,627</td>
</tr>
<tr>
<td>1988</td>
<td>17,163</td>
<td>29,713</td>
<td>36.61%</td>
<td>46,876</td>
</tr>
<tr>
<td>1989</td>
<td>15,055</td>
<td>30,128</td>
<td>33.32%</td>
<td>45,183</td>
</tr>
<tr>
<td>1990</td>
<td>13,764</td>
<td>29,145</td>
<td>32.08%</td>
<td>42,909</td>
</tr>
<tr>
<td>1991</td>
<td>13,309</td>
<td>27,307</td>
<td>32.77%</td>
<td>40,616</td>
</tr>
<tr>
<td>1992</td>
<td>12,788</td>
<td>28,199</td>
<td>31.20%</td>
<td>40,987</td>
</tr>
<tr>
<td>1993</td>
<td>11,207</td>
<td>32,713</td>
<td>25.52%</td>
<td>43,920</td>
</tr>
<tr>
<td>1994</td>
<td>11,547</td>
<td>33,561</td>
<td>25.60%</td>
<td>45,108</td>
</tr>
<tr>
<td>1995</td>
<td>11,469</td>
<td>35,500</td>
<td>24.42%</td>
<td>46,969</td>
</tr>
<tr>
<td>1996</td>
<td>11,808</td>
<td>36,974</td>
<td>24.21%</td>
<td>48,782</td>
</tr>
<tr>
<td>1997</td>
<td>12,835</td>
<td>38,990</td>
<td>24.77%</td>
<td>51,825</td>
</tr>
<tr>
<td>1998</td>
<td>13,281</td>
<td>39,827</td>
<td>25.01%</td>
<td>53,108</td>
</tr>
</tbody>
</table>

C. Recent Trends in the Retail Trade Sector

The retail trade sector has been one of the fastest growing sectors of Nashua’s economy. Nashua has evolved
into the region’s premier retail center, and as such retail trade serves as a good indicator of general economic activity. As can be seen in Table VIII – 5, employment in retail has been rising since the 1970’s. Nashua’s retail sales tripled from 1977 to 1992. While the number of retail establishments has risen in Nashua and the Nashua PMSA, there has actually been a decrease in Hillsborough County and the State. But for all four areas, there has been an increase in the number of people employed in retail; substantial increases in total sales; and considerable increases in retail sales per capita, especially in Nashua.

The Census Bureau notes that “data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification Code (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system.” What this means for this analysis is that data from the 1997 Census of Retail Trade, based on the NAICS system, is not directly comparable to data from previous years that was based on the SIC system. For that reason, the percentage change given in the last column of Table VIII-5 examines the period from 1977 – 1992, when the SIC system was in use. It is apparent that the reclassification from SIC to NAICS resulted in several business types being moved from overall “Retail” to other classifications. Without research into where these changes have occurred, which would be a lengthy project, it is not possible to directly compare data from 1997 to that of earlier periods.

The year of 1992 was a period of recession in the northeastern United States, and it is highly unlikely that the City of Nashua suffered a net loss of 189 retail businesses between 1992 and 1997, by which time the recovery was in full swing. It is also highly unlikely that the City lost 1,176 retail employees in this period, when the unemployment rate was rapidly dropping, and in which the number of retail businesses has obviously increased. Therefore, one can assume that the reclassification from SIC to NAISC resulted in a loss of businesses classified as retail. Yet it is interesting to note that total sales show an increase for all jurisdictions from 1992 - 1997, based as it is on a smaller number of businesses classified as retail. If SIC figures were in use, the total sales would undoubtedly be much higher. Per capita sales for Nashua also show an increase from $16,904 in 1992 to $22,275 in 1997, based on an estimated population of 83,000. Again, the actual per capita sales, if based on the older SIC system, would be higher than that shown. All this points to a robust retail sector in Nashua, the PMSA, Hillsborough County and the State of New Hampshire.

Due to the inability to directly compare 1997 data with that from previous periods, the graphs on the following two pages cover the period 1977 – 1992. It is recommended that a new analysis be conducted when the 2002 Census of Retail Trade becomes available. A direct comparison of 1997 and 2002 data will be possible then, since both years will be based on the NAISC system. To obtain 1997 retail trade data for a specific business type (i.e. gas stations), readers should consult the 1997 Census of Retail Trade. From this document, it should still be possible to compare changes over time for specific business types, provided they have not been dropped under the new NAISC system.

### TABLE VIII - 5
RETAIL TRADE STATISTICS, 1977 – 1997

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Nashua</td>
<td>559</td>
<td>585</td>
<td>645</td>
<td>681</td>
<td>492</td>
<td>21.82%</td>
</tr>
<tr>
<td>Nashua PMSA</td>
<td>898</td>
<td>995</td>
<td>1,169</td>
<td>1,142</td>
<td>828</td>
<td>27.17%</td>
</tr>
<tr>
<td>Hillsborough County</td>
<td>2,306</td>
<td>2,492</td>
<td>2,265</td>
<td>2,275</td>
<td>1,692</td>
<td>-1.34%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>8,922</td>
<td>9,397</td>
<td>8,403</td>
<td>8,594</td>
<td>6,645</td>
<td>-3.68%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Nashua</td>
<td>5,754</td>
<td>6,652</td>
<td>10,655</td>
<td>10,787</td>
<td>9,611</td>
</tr>
<tr>
<td>Nashua PMSA</td>
<td>7,667</td>
<td>9,646</td>
<td>16,913</td>
<td>15,741</td>
<td>14,259</td>
</tr>
<tr>
<td>Hillsborough County</td>
<td>18,381</td>
<td>22,870</td>
<td>32,882</td>
<td>29,917</td>
<td>25,208</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>57,913</td>
<td>69,135</td>
<td>102,082</td>
<td>97,133</td>
<td>84,170</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area</th>
<th>Total Sales ($ 1,000's)</th>
<th>1977</th>
<th>1982</th>
<th>1987</th>
<th>1992</th>
<th>1997</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Nashua</td>
<td>5,754</td>
<td>6,652</td>
<td>10,655</td>
<td>10,787</td>
<td>9,611</td>
<td>87.47%</td>
</tr>
<tr>
<td>Nashua PMSA</td>
<td>7,667</td>
<td>9,646</td>
<td>16,913</td>
<td>15,741</td>
<td>14,259</td>
<td>105.31%</td>
</tr>
<tr>
<td>Hillsborough County</td>
<td>18,381</td>
<td>22,870</td>
<td>32,882</td>
<td>29,917</td>
<td>25,208</td>
<td>62.76%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>57,913</td>
<td>69,135</td>
<td>102,082</td>
<td>97,133</td>
<td>84,170</td>
<td>67.72%</td>
</tr>
</tbody>
</table>
Per Capita Retail Sales

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Nashua</td>
<td>$5,475</td>
<td>$7,266</td>
<td>$14,317</td>
<td>$16,904</td>
<td>$22,275</td>
<td>208.75%</td>
</tr>
<tr>
<td>Nashua PMSA</td>
<td>$4,409</td>
<td>$5,307</td>
<td>$10,450</td>
<td>$10,386</td>
<td></td>
<td>135.56%</td>
</tr>
<tr>
<td>Hillsborough County</td>
<td>$4,053</td>
<td>$5,889</td>
<td>$9,538</td>
<td>$10,101</td>
<td></td>
<td>149.22%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>$4,086</td>
<td>$5,629</td>
<td>$9,424</td>
<td>$10,006</td>
<td></td>
<td>144.88%</td>
</tr>
</tbody>
</table>


Note: Due to revisions to the Standard Industrial Code (SIC), 1997 figures are not directly comparable to those from previous years. It is highly unlikely that there has been a decrease in retail activity, as cursory examination of this table suggests. Please see the discussion on the previous page.
D. Nashua’s Economic Strengths, Weaknesses, Opportunities, and Threats

According to the 1995 Spiral Group Study report, Nashua’s economy is defined by the following list of economic strengths, weaknesses, opportunities, and threats:

**Strengths**

- Low Five Year Cost of Doing Business
- No Income Tax
- No Sales Tax
- Low Business Taxes
- High Quality of Life
- Location
- Low Crime Rate
- Highly Educated Work Force
- Computer and Technically Literate Work Force
- Growing Number of Firms
- Welcoming Regulatory Environment
- Stable Manufacturing Base

**Weaknesses**

- High Cost of Utilities
- Poor Telecommunications Infrastructure
- High Property Taxes
- Few Social Services When Compared to Similarly Sized Cities in Other States
- Other Areas Offer Tax Incentives
Lack of a Comprehensive Marketing Strategy
Lack of Local Venture and Project Capital
Shrinking Amount of Available Land
Traffic Congestion

Opportunities

- Improve Telecommunications Infrastructure
- Improve Transportation Infrastructure
- Make Venture Capital Available to Mid-Size Growth Industries
- Market Nashua’s Strengths

Threats

- Continued Poor Telecommunications Infrastructure if Improvements Not Made
- New Hampshire’s Emphasis on Promoting Tourism to the Exclusion of Other Economic Sectors

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1. Strengths

- **Low Five Year Cost of Doing Business**
  Although Nashua is unable to offer tax credits and incentives to businesses that want to or already exist here, the City offers one of the lowest costs of conducting business in the country. Rather than offer tax credits and incentives, bond issues are used to fund infrastructure improvements that benefit the economic climate in the City.

- **No Income Tax**
  One key factor in keeping operating costs low is the lack of an income tax. This is also an important factor for businesses that locate here because it means that the workers are able to retain more of their wealth.

- **No Sales Tax**
  This factor also enables companies and employees to retain wealth. No sales tax is also a boon to retail outlets near the Massachusetts border.

- **Low Business Taxes**
  For obvious reasons, businesses appreciate low taxes. This is one reason why it is relatively cheap to operate a business in Nashua, even though the City cannot offer tax incentives.

- **High Quality of Life**
  In 1997, for the second time, Nashua was designated the “Most livable city in America” by *Money Magazine*. A strong economy with well paying jobs and a low cost of living, in addition to proximity to the ocean, mountains, Boston, and New England charm are the main reasons why Nashua received this designation for the second time in ten years.

- **Location**
  As mentioned above, Nashua is close to many desirable attractions. The ocean is less than an hour away, as is Boston. Skiing is also less than an hour away, and really good skiing is less than two hours away in the White Mountains. The White Mountains and Lakes District offer year-round, outdoor activities. Boston offers a
thriving nightlife scene, a robust economy, world-class colleges, and history.

- **Low Crime Rate**  
  Nashua has one of the lowest crime rates for a city its size in the Nation.

- **Highly Educated Work Force**  
  Because so many students come from the greater Boston area, they create a pool of educated labor. While some leave the region, many do not want to leave New England, and many of those who do leave end up returning.

- **Computer and Technically Literate Work Force**  
  Since Nashua has a long history of industry, especially in technically demanding fields such as defense, electronics, and computers, there is a great deal of technical expertise in the area.

- **Growing Number of Firms**  
  In the 1980’s when the largest firms began to layoff thousands of workers a year, many workers stayed and became entrepreneurs, starting their own firms. Today, over 5,000 businesses are located in Nashua.

- **Welcoming Regulatory Environment**  
  Although the City cannot extend special tax breaks to companies, it can streamline permitting; offer business training; help businesses seek capital; and generally help companies to feel at home and know the City cares about them.

- **Stable Manufacturing Base**  
  There has been a steady rise in the number of manufacturing firms since 1993. Today manufacturing accounts for a quarter of all jobs in Nashua, which is higher than the state and national averages.

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### 2. Weaknesses

- **High Cost of Utilities**  
  Electricity rates in Nashua are not competitive. In one case, a study by the SPIRAL Group they found that a firm was paying 31% more per kilowatt hour doing business in Nashua than at their other factory in Salem, Massachusetts. When compared to other regions, especially the southern states, Nashua’s electricity is even more expensive.

- **Poor Telecommunications Infrastructure**  
  Although there has been discussion for years of improving the State’s telecommunication system, the issue has always come down to who is going to pay for it. The SPIRAL Group Marketing Strategy for Nashua cites the *New York Times* that New Hampshire telephone systems are not competitive with those in the Southwest and Western regions in terms of high-speed digital access. Although Nashua was ranked third in the nation by *PC World* (April 1997) for number of telecommuters (in cities with a population under 250,000), the City is known to have insufficient bandwidth and poor telecommunications infrastructure in general. New Hampshire as a whole needs to improve its telecommunications infrastructure, especially since it has the highest amount of “techies” per capita (78 per 1,000) in the nation. (*Money Magazine*, Best Places 1997)

- **High Property Taxes**  
  With no personal income tax or sales tax, the City and State have to make it up in property taxes.

- **Few Social Services When Compared to Similarly Sized Cities in Other States**
Other Areas Offer Tax Incentives
Presently, Nashua can counter offers that other cities might make to prospective firms with advantages such as a low five-year cost of business, a high quality of life, an educated work force, and low crime rate. In the future, it is imperative that Nashua retain these advantages in order to retain businesses that may be lured by other cities’ provision of considerable tax breaks.

Marketing
The State has a $2,000,000 budget for marketing the state as a tourist destination, which is positive; however, the City is not a tourist destination, and needs to let businesses know that it is a great place to locate and operate a business.

Lack of Local Venture and Project Capital
Both the SPIRAL Group marketing Strategy in 1996 and the Mt. Auburn Associates Strategic Plan of 1991 cited the need to increase funding and venture capital sources. One major problem is that most financing sources base their funding on inventory in stock, which does not always apply to many progressive Research and Development, Software, and “Just In time” manufacturers.

Shrinking Land Pie
Nashua is largely built-out. While the City has land for small and mid-size companies to expand, it cannot easily accommodate many more large firms.

Traffic Congestion
Aside from an outdated telecommunications infrastructure, perhaps the greatest physical constraints for businesses are Nashua’s traffic congestion and inadequate road network. Most of Nashua’s arterial and collector road network was developed decades ago when the City had a much lower population. Many of Nashua’s roadways suffer from morning and afternoon rush hour congestion, and as the population increases towards build-out, the City will be faced with the challenge of relieving this traffic congestion. Several businesses that would otherwise have chosen Nashua as a location cited traffic congestion as a reason for locating elsewhere.

3. Opportunities

Improve Telecommunications Infrastructure
The City has an opportunity in the near-term to work with the State and utility companies to improve the region’s telecommunications network. This is one of the Nashua region’s greatest weaknesses, so this issue should be addressed as soon as possible.

Improve Transportation Infrastructure
The recent widening of the F.E. Everett Turnpike and proposed construction of the Broad Street Parkway will help to relieve downtown traffic congestion, but problem areas will likely remain even after these projects are completed. The City should proactively address the problem of traffic congestion, perceived by many in the business community as a disincentive to locating in Nashua. The City, therefore, has an opportunity to improve this situation in the near-term, which will only help to improve Nashua’s attractiveness for business.

Make Venture Capital Available to Mid-Size Growth Industries
The State and the Nashua region have the opportunity to increase the number of funding and venture sources that can offer innovative methods of funding to small- and medium-sized companies. Increasing the awareness of Nashua’s successful businesses among the venture capital community can help in this regard.
• *Market Nashua’s Strengths*
  As seen above, Nashua has many strengths and advantages to offer businesses, but much of the rest of the nation and world is unaware of Nashua as a great place to do business. This perception needs to be changed through a marketing campaign to increase awareness of Nashua as a good place to do business.

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4. **Threats**

• *Continued Poor Telecommunication Infrastructure if Improvements Not Made*
  As the Spiral Group report of 1995 stated: “*If broadband communications are not made widely and quickly available, with a significant advertising and service investment by telephone providers to turn around the perception that they are unavailable, this constitutes a significant barrier to entry for Nashua to successfully penetrate a market and attract a high technology firm.*”

• *New Hampshire’s Emphasis on Promoting Tourism to the Exclusion of Other Economic Sectors*
  The Spiral Group report of 1995 found that tourism is a strongly funded sector in New Hampshire, with a $2,000,000 state advertising budget. Since the Spiral report came out, the State has made great strides to promote its economic, as well as recreational, assets.

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IV. **SUMMARY**

Nashua currently enjoys a vibrant and growing economy. Its location on the Massachusetts border; access to major transportation routes; presence of a general aviation airport; highly educated work force; favorable State tax structure; and high quality of life make the City a very desirable location for businesses to locate to and expand in.

Although Nashua enjoys many advantages favorable to business, it is not immune to regional and national economic trends. Since 1980, the City experienced an economic boom (mid-1980’s), a recession (late-1980’s – early 1990’s) and a recovery period (mid-1990’s to the present). Nashua’s economy, once solidly based on manufacturing, has evolved into a more diverse one that is predominantly based on the service and trade sectors. Manufacturing employment, which represented 50% of the City’s total employment in 1984, today accounts for approximately 25% of total employment.

If there is one lesson to be learned from the recession of the past decade, it is that a City should not put all of its “economic eggs” into one or two baskets. In the mid-1980’s, two firms, Digital Equipment Corporation, and Sanders, Inc., accounted for nearly half of the City’s jobs. As the economy went into recession and the computer industry experienced restructuring, these two firms laid off many workers and the local economy was hit hard. Although large companies are an asset to a community, it is dangerous to be overly dependent on one or two firms. With today’s economic perspective, diversity equals resiliency.

Total employment in the City rose from 33,921 in 1980 to 51,825 in 1997, a 52.8% increase! In recent years, the retail trade sector has been one of the fastest growing sectors of Nashua’s economy. Nashua has evolved into the region’s premier retail center, and the City boasts three major retail economic centers: the downtown, the Daniel Webster Highway corridor in south Nashua, and the Amherst Street / Route 101-A corridor in northwestern Nashua.
There are several situations and trends that must be addressed if Nashua’s economy is to grow in resiliency and strength. First, the City’s telecommunications infrastructure must be upgraded to the latest wide-band standards. Nashua has become a center of high-tech employment, but this status could be jeopardized by its outmoded communications infrastructure. Second, the high cost of utilities in the City and State may be a disincentive for some businesses that would otherwise choose to locate here. And third, traffic congestion can also be a disincentive, and efforts to address the City’s traffic problems must be ongoing.

Overall, the City of Nashua is blessed with a healthy and diverse economy that has shown resiliency. Although there will no doubt be recessions and economic downturns in the future, the effects of downturns can be minimized through planning that encourages a diverse economy and supports suitable business activity.
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      2. Recent Industrial and Employment Trends in Nashua
      3. Firm Size and Employment
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      5. Industrial Build-Out and Possible Implications
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      2. Use Regulations
      3. Sub-Areas Zoned Airport Industrial
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III. Summary
IX. INDUSTRIAL ELEMENT

I. THE STATE OF INDUSTRY IN NASHUA

A. Nashua’s Industrial Zoning Districts: Introduction and Overview
Nashua has three (3) industrial zoning districts: General Industrial (GI), Park Industrial (PI), and Airport Industrial (AI). Each district seeks to accommodate different types of industry, and each reflects the economic forces active during various periods in the City’s history. The City’s Industrial zoning districts are presented in Map IX–1.

The General Industrial (GI) zoning district reflects the City’s industrial heritage, which is closely tied to the Nashua and Merrimack rivers. The majority of the City’s older, heavy industries are found in the GI district. The GI district includes the historic Millyard area and the areas along the Nashua and Merrimack Rivers east of downtown, north of Greeley Park, and along the Merrimack River in southeastern Nashua, east of the Daniel Webster Highway. Part II of this chapter will examine the features, land uses, and future challenges of this district in more depth.

The Park Industrial (PI) zoning district reflects a more recent period in Nashua’s industrial evolution; the period of the planned industrial park. The City’s PI areas have become the home of what is known as “light industry,” and include electronic, computer and software development, other research and development facilities, office parks and warehousing. These PI areas are widely scattered, and include the Northeastern Boulevard area, the Simon Street area, the area north of Exit 1 on Spit Brook Road, the Trafalgar Square area south of Exit 8, and a large area in northwest Nashua, including land along Route 101A (Amherst Street) and the area southwest of the railroad tracks to the Hollis and Merrimack borders. Each of these areas presents unique characteristics and challenges, which will be examined in Part II of this chapter.

The third industrial district is the Airport Industrial (AI) zone. As the name implies, it includes the Boire Field Airport and the surrounding industrially zoned land, originally intended to support the Airport’s operations. The AI district includes substantial frontage on Route 101A (Amherst Street), and, as will be seen, the history of land use in this area raises questions as to the intent, applicability, and future of industrial zoning along the 101-A corridor.

B. Goals, Objectives and Recommendations

**GOAL:** Ensure that the industrially zoned areas contribute toward the economic and fiscal well being of the City through full utilization and proper planning, and by providing for traditional industrial, office, research and development, and other similar types of uses.

**OBJECTIVE: INDUSTRIAL DISTRICTS AND INDUSTRIAL POLICY**

The City and local economic development agencies will strive to attract a diversified mix of well paying, leading edge, and clean industries to Nashua and ensure this industry is environmentally sound and does not detract from the quality of life in adjacent residential areas.

**Recommendations:**

- Attract a diversified industrial base that is resistant to economic fluctuations.
- Promote Nashua as a center of entrepreneurial activity and create a set of services that provides the environment needed for successful enterprise development and small business expansion.
- Create jobs in Nashua by attracting firms that will provide new high paying employment opportunities.
- Identify underutilized industrial sites.
- Encourage and support infill industrial development next to existing industrial sites.
- Encourage and support the reuse and rehabilitation of existing, underutilized industrial buildings.
- Encourage Exit 2 access to the industrially zoned area north of Spit Brook Road.
- Consider the appropriateness of industrial revitalization plans for the following industrially zoned areas: N.E. Boulevard, Simon Street, the Millyard, the Airport and Park Industrial areas near the Airport, and the former Johns Manville and Ingersoll-Rand properties.
i. Prevent the erosion of the City’s industrial base from commercial uses.

j. Determine what commercial uses are appropriate in certain industrial buildings and areas.

k. Ensure that adequate infrastructure exists to serve existing and proposed industrial areas.

l. Consider a streamlined and creative review and approval process for industrial uses.

m. Write clear definitions of all potential industrial types/uses and apply them to all of the industrial zones.

n. Harmonize industrial expansion or revitalization with surrounding land uses.

o. Enhance the visual quality of new and existing industrial areas through improved building design, landscaping, signage and control of nighttime light pollution.

p. Consider what additional lands, if any, would best be suited for industrial use if the existing stock were to fill up.

q. Ensure that adequate transportation networks exist to serve existing and proposed industrial areas.

r. Provide a reasonable amount of space for heavy industrial uses, provided they are environmentally sound and do not detract from neighboring land uses.

s. Provide adequate zoning for industrial park type development.

t. Promote clean, technologically advanced industries.

u. Discourage or prohibit noxious industries that create the potential for serious health or safety hazards.

v. Encourage attractive, landscaped, and sensitively sited industrial development that is compatible with surrounding land uses.

w. Create new jobs in Nashua by attracting firms that will provide new, high-paying employment opportunities. Target leading growth industries in high-tech, Health Services, and other sectors projected to be leaders in the 21st century.

C. General Characteristics and Trends

1. The Importance of an Industrial Base to a City’s Economic and Fiscal Health

   Industry has been characterized as the engine that drives all other economic activity. In simple terms, it is the part of the economy involved in the production of (usually) tangible, solid products that are either inputs of other industrial processes or products for consumption by businesses and citizens. These products form the basis for wholesale and retail trade, which are other significant sectors of the economy. For the purposes of this Master Plan Update, and unless noted otherwise, the term “industry” will be synonymous with manufacturing and related research and development activities, as defined by Standard Industrial Codes (SIC) 20 - 39.

   Industrial activities are generally divided into two classes: heavy industry and light industry. Heavy industry typically includes operations that require significant infrastructure (access to rivers and ports, rail lines) and raw materials in the production process. Examples include the production or refinement of raw materials such as steel or chemicals, large processing facilities, and power plants. Heavy industry possesses the greatest potential for negative impacts such as land, air and water pollution. Because of these potential or real impacts, the compatibility of heavy industry with adjacent land uses, especially residential, is often problematic. For this reason, many communities prohibit heavy industry through their zoning powers. As a result of this, and economic factors such as the cost of labor and raw materials, many heavy industries that were once located in New England have relocated to other parts of the country or to other countries. In contrast, light industry represents smaller scale production processes and facilities. Light industry typically does not require the same degree of infrastructure support as heavy industry and is therefore more flexible in its siting needs. Most of the industrial uses associated with the current New England economy are light industries. These include: software development, biotechnology, communications and electronic equipment and components, and other high-tech operations.
For the most part, light industry is cleaner than heavy industry in terms of pollution, noise, and other negative impacts. It is generally more compatible with other land uses in comparison to heavy industry. Though compatibility issues may still arise, the smaller scale of light industry presents fewer development constraints for most communities.

How much land should a community set aside for industrial use? The University of Massachusetts’s Center for Economic Development states that:

“Industrial development benefits a community’s tax base because it is taxed at a higher rate than other uses such as residential development and has significantly lower service costs. This typically results in a tax surplus that offsets other types of development which can be a financial drain on a community. Based on these considerations, the (UMASS) Center for Economic Development suggests that 10 percent of a community’s land area should be allocated for industrial uses.”

Nashua, with nearly 18% of its land zoned for industrial use, is certainly well above the suggested minimum. However, only 8.11% of the land in Nashua is currently being used for industry. Furthermore, as will be seen, not all of this land is readily available or suitable for industrial use, due to limiting factors such as wetlands, floodplains, water supply protection buffers, the lack of access and other infrastructure constraints.

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2. Recent Industrial and Employment Trends in Nashua

Nashua has historically been a manufacturing city. With the combined water power of the Nashua and Merrimack rivers at its disposal, it is not surprising that Nashua evolved into one of New England’s premier mill cities from the early 1800’s through the middle part of this century. As recently as 1980, slightly over 50% of those employed in private industry worked in manufacturing. Nashua retained a strong industrial base through the early 1980’s, with the number of manufacturing employees peaking in 1984. This began to erode soon thereafter, with the downturn in the regional and national economy. During the 1980’s, the large-scale relocation of manufacturing (especially of non-durable goods) operations from the United States to countries with less expensive labor costs accelerated, contributing to the further erosion of manufacturing as the foundation of both the national and regional economies. Between 1986 and 1993, the City lost 8,464 manufacturing jobs, and the share of those employed in manufacturing dropped from nearly 50% of the private workforce in the mid 1980’s to 25% by 1993, a very significant reduction. Manufacturing has recently begun to rebound, but this sector is still not as strong as it was in the early 1980’s. Table IX – 1 and Figure IX – 1 present the City’s manufacturing and non-manufacturing employment statistics.

Over the last two decades, the service and retail/wholesale trade sectors have experienced significant growth, and have contributed the most to the recent increase in the number of jobs in the region and in Nashua. However, jobs in these sectors tend to pay less than manufacturing jobs, and they do not have the same multiplier effect on the economy that manufacturing has. One estimate is that one manufacturing job creates four jobs in the retail, service and distribution sectors. The importance of manufacturing to the local and regional economy is illustrated by the fact that in 1996, only 7% of employers were manufacturing enterprises, representing 24% of the workforce, with an average weekly wage that was nearly 50% higher than the average for all industries. In 1997, the average yearly earnings for all employees, in all sectors, was $34,004, while for manufacturing employees it was $53,383. This data clearly reiterates the importance of manufacturing to the local economy.

Since 1980, several interesting trends in employment and manufacturing can be seen. The number of manufacturing firms (or “units” in the terminology of the Department of Employment Security) dropped to a low of 152 in 1989, while the low point in the number of manufacturing employees occurred in 1993, with 11,207 employees of a total of 43,920 in private employment. This lag may be due to downsizing, when a few large employers laid off a significant number of workers in the early-mid 1990’s. Since 1993, manufacturing has rebounded, as reflected both in the number of firms and employees. A total of 172 manufacturing firms were located in Nashua during 1998. This number has fluctuated in recent years, but still shows an increase from the 159 manufacturing firms located in the City during 1993. The number of manufacturing employees reached 13,281 in 1998, an 18.5% increase over 1993. In fact, according to the State of New Hampshire Department of Employment Security (NHDES), Nashua had the greatest
number of manufacturing employees of any municipality in the State in 1998, or approximately one of every eight Granite State manufacturing jobs. Hopefully this trend of a rebounding manufacturing sector will continue for the last years of the decade and into the early 21st century.

Growth in the service and trade sectors has exploded in the period during which manufacturing has declined. Table IX – 1 clearly illustrates this trend. The number of non-manufacturing jobs in Nashua increased from 16,889 in 1980 to 39,827 in 1998, more than doubling the employment in these sectors. Since the end of the recession of the early 1990’s, the City has been adding about 1,500 to 2,000 non-manufacturing jobs each year. Total private sector employment in Nashua reached 49,092 in 1998, as compared to 33,921 in 1980. Therefore, while the manufacturing sector is rebounding from its recent decline, it is unlikely that it will regain its former share of the employment pie, which in 1984 amounted to over half of the City’s employment base.

Table IX – 2 and Figure IX –2 show that, except for the period of 1990-1993, Nashua has had a lower unemployment rate when compared with the nation.

### 3. Firm Size and Employment

The NHDES conducted a study of State employment by firm size. Due to privacy issues, NHDES does not release firm size data at the municipal level; however, statewide data is still useful in gauging the overall patterns affecting local employment. NHDES found that 50% of New Hampshire workers are employed by small- to medium-size firms in four size ranges: 10 – 19; 20 – 49; 50 – 99; and 100 – 249 employees. Below this level are smaller firms with 1 - 4 or 5 - 9 employees. Above it are the mid-range firms with 250 – 499 and 500 – 999 employees. The largest firms are those with over 1,000 employees. The largest firms employed 65,434 people in 1996. The importance of small- to medium-size firms is illustrated by the fact that in the same year, firms employing 20 - 49 people employed 68,935 people. These statistics reinforce the importance of attracting and retaining small- to medium-size firms.

The importance of large firms is not diminished by these findings. However, the old strategy of basing a local economy on the presence of one or a few large manufacturing firm(s) is not a wise one, as many communities discovered when their principal mill went out of business or relocated. According to the 1997 New Hampshire Economic Review, three (3) of New Hampshire’s 30 largest manufacturing employers are located in Nashua. These are: BAE Systems (4,700 employees); Teradyne Connection Systems (2,200 employees); and Nashua Corporation (600 employees). Compaq has a total regional employment of 3,119.

#### TABLE IX – 1

**GENERAL EMPLOYMENT CHARACTERISTICS: 1980 - 1998**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Manufact.</th>
<th>Non-Manufact.</th>
<th>%</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>158</td>
<td>1,224</td>
<td>11.43%</td>
<td>1,382</td>
</tr>
<tr>
<td>1981</td>
<td>158</td>
<td>1,277</td>
<td>11.01%</td>
<td>1,435</td>
</tr>
<tr>
<td>1982</td>
<td>157</td>
<td>1,324</td>
<td>10.60%</td>
<td>1,481</td>
</tr>
<tr>
<td>1983</td>
<td>151</td>
<td>1,379</td>
<td>9.87%</td>
<td>1,530</td>
</tr>
<tr>
<td>1984</td>
<td>163</td>
<td>1,578</td>
<td>9.36%</td>
<td>1,741</td>
</tr>
<tr>
<td>1985</td>
<td>164</td>
<td>1,676</td>
<td>8.91%</td>
<td>1,840</td>
</tr>
<tr>
<td>1986</td>
<td>162</td>
<td>1,814</td>
<td>8.20%</td>
<td>1,976</td>
</tr>
<tr>
<td>1987</td>
<td>162</td>
<td>1,911</td>
<td>7.81%</td>
<td>2,073</td>
</tr>
<tr>
<td>1988</td>
<td>159</td>
<td>1,917</td>
<td>7.66%</td>
<td>2,076</td>
</tr>
<tr>
<td>1989</td>
<td>152</td>
<td>1,913</td>
<td>7.36%</td>
<td>2,065</td>
</tr>
<tr>
<td>1990</td>
<td>161</td>
<td>1,878</td>
<td>7.90%</td>
<td>2,039</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Manufact.</th>
<th>Non-Manufact.</th>
<th>%</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>17,032</td>
<td>16,889</td>
<td>50.21%</td>
<td>33,921</td>
</tr>
<tr>
<td>1981</td>
<td>18,013</td>
<td>17,976</td>
<td>49.95%</td>
<td>35,989</td>
</tr>
<tr>
<td>1982</td>
<td>18,182</td>
<td>17,974</td>
<td>49.71%</td>
<td>36,156</td>
</tr>
<tr>
<td>1983</td>
<td>19,249</td>
<td>19,055</td>
<td>49.75%</td>
<td>38,304</td>
</tr>
<tr>
<td>1984</td>
<td>21,778</td>
<td>21,145</td>
<td>50.74%</td>
<td>42,923</td>
</tr>
<tr>
<td>1985</td>
<td>22,831</td>
<td>21,698</td>
<td>48.73%</td>
<td>44,529</td>
</tr>
<tr>
<td>1986</td>
<td>29,145</td>
<td>28,415</td>
<td>40.34%</td>
<td>47,627</td>
</tr>
<tr>
<td>1987</td>
<td>29,128</td>
<td>29,713</td>
<td>33.32%</td>
<td>45,183</td>
</tr>
<tr>
<td>1988</td>
<td>23,713</td>
<td>21,145</td>
<td>32.08%</td>
<td>42,909</td>
</tr>
</tbody>
</table>
FIGURE IX – 1
MANUFACTURING AND NON-MANUFACTURING
Employment in Nashua
1980-1998

TABLE IX – 2
UNEMPLOYMENT RATES
Nashua compared with the U.S.
1996 - 2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Nashua</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>3.2%</td>
<td>6.9%</td>
</tr>
<tr>
<td>1997</td>
<td>2.7%</td>
<td>6.1%</td>
</tr>
<tr>
<td>1998</td>
<td>2.9%</td>
<td>5.5%</td>
</tr>
<tr>
<td>1999</td>
<td>4.0%</td>
<td>5.3%</td>
</tr>
<tr>
<td>2000</td>
<td>6.4%</td>
<td>5.5%</td>
</tr>
</tbody>
</table>

Source: NH Department of Employment Security
The NHDES and New Hampshire Economic and Labor Market Information Bureau published a report titled *New Hampshire Employment Projections By Industry and Occupation, Base Year 1996 to Projected Year 2006*. This report examines current levels of employment by sector and projects how employment in those sectors may change by 2006. The analysis begins with projections by major industry division (the term industry here is used in its broadest sense), and then is refined to the occupation level. Major industry divisions include: manufacturing (which is what is meant by industry for purposes of the master plan update); finance/insurance and real estate (FIRE); retail trade; wholesale trade; construction; transportation and public utilities; government and services. Of these industries, the services sector is projected to grow most rapidly and provide the most new jobs in the State. Services is a broad category that includes: health, education, legal, engineering, accounting, research, management, business, social services, hotels, motels and other lodging, restaurants, amusement and recreation services, personal services and various repair services. It is estimated that nearly 50,000 service jobs will be created in New Hampshire between 1996 and 2006, and 88,000 total new jobs (*all major industry groups*) will be created. Thus, the prevalence of future service jobs in the New Hampshire economy is readily apparent.

The report states that for occupations, the professional, paraprofessional, and technical group is predicted to grow
the fastest and add the most jobs to the State. The employment share in these occupational groups is estimated at 32.1% for 2006. Employment in occupations requiring a Bachelor’s degree is expected to grow fastest, by 26.8% in the ten-year period.

The six occupations with the highest projected growth rates for the 1996-2006 period, are, with one exception, supportive of high-tech manufacturing enterprises. These include: systems analysts at 111.6%, computer engineers at 86.1%, electronic pagination system workers at 82.2%, and computer support specialists at 76.3%. The only non high-tech occupation in this expanding sector is personal and home health aides, projected to grow by 85.2%.

The Federal Bureau of Labor Statistics defines high-tech industries as those in which the proportion of research and development (R&D) workers is higher than the average for all industries surveyed. If the number of R&D workers is at least 50% higher than the average for all industries, the industry is designated R&D intensive Level 1, the most high-tech of all industries. The following Level 1 high tech industries are represented in Nashua: industrial organic and inorganic chemicals, special industry machinery, computer and office equipment, electronic components and accessories, aircraft and aerospace parts and systems, and measuring and controlling devices. Since high-tech industries employ a high proportion of well-educated workers earning above-average wages, their importance to the local economy is obvious. Every effort should be made to retain existing high-tech industries and promote conditions that will attract more to the area.

The NHDES and Economic and Labor Market Information Bureau’s report New Hampshire Employment Projections By Industry and Occupation, Base Year 1996 to Projected Year 2006, predicts that manufacturing will remain relatively strong in New Hampshire as compared to the nation. Several reasons are cited for this. The first is the State’s proximity to the major metropolitan areas of eastern Massachusetts. The second is the high concentration of colleges and universities centered on Boston, which provides a steady stream of graduates, many seeking positions in high-tech industries. The third is easy access to the international markets of Canada, Europe and the World, due to New Hampshire’s transportation network and location on the east coast near major ports. All of these factors should result in an increase of manufacturing employment in New Hampshire, while nationwide manufacturing employment is expected to decline. The gain in employment in the State is expected to be modest, however, in part due to the continued automation of production processes, subcontracting of components, and increasing labor costs, which may cause manufacturing employers to invest in further automation. According to the NHDES, statewide manufacturing employment is predicted to increase from 104,321 in 1996 (19.4% of total employment), to 109,500 by 2006 (17.6% of total employment). Manufacturing’s share of total employment is expected to decrease slightly due to the proportionately greater growth of the service sector.

Durable goods manufacturing employment is expected to increase by 9.9% between 1996 and 2006, while nondurable goods manufacturing is expected to decrease by 5.8% over the same period. The nondurable goods sector includes food, textile mill products, apparel, paper products, printing, chemicals, petroleum and coal products, rubber and plastics, and leather products. Under durable goods manufacturing, three classifications are expected to show much higher growth than average. These are primary metal industries with 12.3% growth, industrial machinery and equipment with 12.3% growth, and instruments and related products, with the highest growth, 22.3%.

In Nashua in 1996, 11,808 workers were employed in manufacturing, or 24.2% of the workforce. The majority of these, 9,818 workers, were employed in durable goods manufacturing, with most in just two SIC classifications, #35 - industrial and commercial machinery and computer equipment, and #36 - electronic and other electrical equipment and components. Only 1,990 workers were employed by non-durable goods manufacturing firms. The two SIC classifications which represent the majority of Nashua’s industrial employment are also those most likely to be high-tech intensive. Jobs in these industries pay higher than average wages, and thus have an important impact on the local economy by supporting retail trade, housing demand, and other services.

Table IX – 3 and Figure IX – 3 show 1998 employment in Nashua by SIC group. The table shows that by 1998 the manufacturing sector accounted for 25% of all jobs in Nashua.

It is important to identify the future issues and challenges faced by industry in Nashua. These challenges must be clearly understood if industry is to continue its recovery, and remain the most vital pillar of Nashua’s economic base into
the 21 century.

### TABLE IX – 3
1998 EMPLOYMENT BY SIC GROUPS
CITY OF NASHUA

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>EMPLOYMENT</th>
<th>% EMPLOYMENT</th>
<th>EMPLOYERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>207</td>
<td>0.4%</td>
<td>30</td>
</tr>
<tr>
<td>Construction</td>
<td>1,124</td>
<td>2.1%</td>
<td>142</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>13,281</td>
<td>25.0%</td>
<td>172</td>
</tr>
<tr>
<td>Trans., Comm., Utilities</td>
<td>1,829</td>
<td>3.4%</td>
<td>63</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>2,310</td>
<td>4.4%</td>
<td>358</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>11,768</td>
<td>22.2%</td>
<td>521</td>
</tr>
<tr>
<td>F.I.R.E. *</td>
<td>2,723</td>
<td>5.1%</td>
<td>196</td>
</tr>
<tr>
<td>Services **</td>
<td>15,802</td>
<td>29.8%</td>
<td>1,015</td>
</tr>
<tr>
<td>Government</td>
<td>4,017</td>
<td>7.6%</td>
<td>25</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>53,061</td>
<td>100%</td>
<td>2,522</td>
</tr>
</tbody>
</table>

*Finance, insurance and real estate.

**Services includes health, education, legal, engineering, accounting, research, management business and social services. Also included under services are hotels and other lodging, restaurants, amusement and recreation services, personal services and various repair services.

### FIGURE IX – 3
1998 EMPLOYMENT BY SIC GROUPS
CITY OF NASHUA

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5. Industrial Build-Out and Possible Implications

How much additional industrial square footage could be built in Nashua once all suitable industrial land is
developed? When the readily developable vacant land is developed, will sites with older, underutilized buildings attract redevelopment? How many of the older industrial buildings are suitable for redevelopment, given the needs of today’s industries? What will industrial build-out translate to in terms of new employees and traffic impacts? These are important, but difficult, questions that must be addressed to attempt to forecast Nashua’s industrial future. As part of a traffic projection exercise conducted by the Nashua Regional Planning Commission, City Planning Staff estimated the build-out potential of each of the City’s traffic analysis zones (TAZ), based on estimates of developable land, past and current development patterns, and other factors. This exercise was not as meticulous as a standard build-out study, but yielded results that are proving useful to the planning process.

The estimate of total new industrial and R&D office space in the City’s industrial districts resulting from this exercise is 3,027,500 square feet. The majority of this, approximately 2,167,500 square feet of new development, is estimated for PI Zone 1 (“Parcel M”) in northwest Nashua. However, this area is currently being developed with the construction of the new Corning Lasertron site and the expansion of Delta Education in Westwood Park. That leaves approximately 860,000 square feet of development to occur in the rest of the City. The majority of that, 820,000 square feet, is estimated to occur in PI Zone 4, the area north of Spit Brook Road and west of the Turnpike. The remainder of new development is expected to occur in scattered locations throughout the City, in many cases by additions to existing buildings. The largest factor in assessing how much redevelopment will occur is the willingness of present and future industries to utilize older sites and/or “build up.” This has already occurred in the case of several Nashua-area based industries that wish to remain in the area. One example is the recent expansion of the Teradyne facility on Northeastern Boulevard. In 1998, Teradyne nearly doubled the space of their facility on Northeastern Boulevard with a 90,400 sq.ft. addition to an existing 110,290 sq.ft. manufacturing building.

How many future employees could Nashua expect based on 860,000 additional square feet of industrial, R&D, or office space? This will depend to a great extent on the mix of land uses in the industrial districts. The Institute of Traffic Engineers (ITE) has developed employment multipliers for various land uses:

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Employee / Space Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Industrial</td>
<td>1 / 1,000 sq.ft.</td>
</tr>
<tr>
<td>Light Industrial</td>
<td>1 / 500 sq.ft.</td>
</tr>
<tr>
<td>Office</td>
<td>1 / 250 sq.ft.</td>
</tr>
<tr>
<td>Research and Development</td>
<td>1 / 500 sq.ft.</td>
</tr>
<tr>
<td>Retail</td>
<td>1 / 500 sq.ft.</td>
</tr>
<tr>
<td>Warehouse</td>
<td>1 / 50,000 sq.ft.</td>
</tr>
</tbody>
</table>

All the scenarios listed below are based on a total of 860,000 additional square feet of industrial, R&D, office, and warehouse development in Nashua’s industrial districts. For the sake of simplicity, and because most of the industrially zoned frontage on Amherst Street has already been developed for retail/commercial use, the scenarios do not include a percentage of new retail space.

The three scenarios are:

- **10 % Standard Industrial**: 86 employees; **50 % Light Industrial**: 860 employees; **40 % office**: 1,376 employees, for a total of 2,322 new employees in the Industrial Districts.

- **10 % Standard Industrial**: 86 employees; **40 % Light Industrial**: 688 employees; **25 % office**: 860 employees; **25 % warehouse**: 4 employees, for a total of 1,638 new employees in the Industrial Districts.

- **50 % Light Industrial**: 860 employees; **30 % office**: 1,032 employees; **20 % warehouse**: 3 employees, for a total of 1,894 new employees in the Industrial Districts.

Based on the results of the above scenarios and the additional new jobs in Westwood Park, it can be concluded that Nashua could experience between 3,300 and 4,300 new jobs in its industrial districts by build-out. The most
important factor is the mix of uses. Office use generates the greatest number of employees per square foot, while warehousing generates the least. Both of these uses are common in the Park and Airport Industrial Districts. Given economic cycles and changing business needs, it is hard to predict what mix of uses is most likely to occur. It is interesting to note that Retail has the same employment multiplier as Light Industrial, so a minor amount of retail development would not unduly impact the above projections. The average of the above range (3,300-4,300) is 3,800, which would represent a 7% increase in Nashua’s employment over current levels. A significant amount of new employment could also be generated in the commercial or business districts, so Nashua’s future increase in employment will no doubt exceed 7%.

The new employees will also have an impact on traffic volumes. The Transportation Element will factor in the number of new employees into traffic models, to show where and how much traffic is expected to increase in Nashua. This, in turn, will indicate where improvements to the City’s road network are needed.

D. Issues that Industry Faces in Nashua

This section will examine the general issues facing the future of industry in Nashua. There are many more issues specific to each zoning district or industrial areas of the City. These will be discussed in the chapter below, which discusses specific industrial zoning districts.

In late 1994 and early 1995, the City’s Community Development Division and the Aldermanic Planning and Economic Development Committee facilitated a roundtable group of City officials, industrial landowners, land use attorneys, and private citizens to examine issues regarding industrially zoned land and existing space in industrial buildings. The larger group broke into two groups: one focused on industrial land, the other on industrial buildings, and became known as the Industrial Focus Groups. The groups made recommendations for addressing the issues and problems related to planning for industrial land. Although this work is several years old, it is still generally valid and serves as a springboard for consideration of other issues.

Before discussing the findings of the Industrial Focus Groups, several additional comments and findings can be made. The first is that the supply of land suitable for new industrial development is dwindling. The total amount of land zoned industrial in the City is approximately 3,688 acres. There are 1,601 acres of land within the City that are currently being used for industrial. Of this industrial zoned land, approximately 915 acres are currently vacant and potentially available for industrial use. However, not all of this available land is developable, since wetlands, steep slopes, and inaccessibility may preclude development in some areas. A more conservative estimate is that the amount of vacant industrial land suitable for industrial development is about 300 acres. A closer look at just how much land is readily available for industrial use in each of the three major industrial classifications (GI, PI, AI) will be made below, when each zone is examined in turn.

Another important issue regarding the use, and especially re-use, of industrially zoned land is hazardous materials (haz-mat) contamination. As is commonly known, Nashua was once a major site for the manufacture of asbestos, resulting in asbestos contaminated land scattered throughout the City. A major creosote facility also operated in Nashua, and although this site is zoned General Industrial, ongoing remediation of the groundwater will most likely preclude any industrial or commercial use of the land for many years. A major concern in the reuse or abandoned or underutilized industrial sites and buildings is the prospect of haz-mat contamination, and its concomitant costs and responsibilities. To address this issue, the New Hampshire Legislature passed RSA 147-F, which established a program to encourage voluntary cleanup and redevelopment of contaminated properties. The program provides incentives for environmental cleanup by persons who did not cause the contamination. The program works by limiting the liability of purchasers of contaminated property through issuance of a “Covenant Not to Sue” by the NH Department of Justice, to applicants / purchasers who meet certain guidelines. This program should be investigated by anyone contemplating the purchase of a “brownfield” site.
1. Findings of the Vacant Industrial Land Focus Group

The Vacant Industrial Land Focus Group arrived at the following problem statement:

“The lack of basic infrastructure plagues several of the largest areas zoned for industrial growth; namely, the Flatley property and Southwood’s Parcel M. The question raised is what role should the City play in assisting private developers in overcoming such obstacles? Some concerns pertain to the need to better define what is meant by “industrial development.” The idea of constructing and up-to-date inventory of available industrial property and categorizing its attributes was also favored.”

The Focus Group also suggested several recommended actions for addressing the issues raised in the problem statement:

- Clearly define “industry,” taking into account the broad range of uses.
- Prepare a detailed inventory of vacant land, with specific characteristics noted.
- Evaluate the relative strengths of various areas.
- Devise strategies to surmount impediments that inhibit development viability.
- Engage the City as a cooperative partner with landowners requiring assistance.
- Create funding mechanisms to solve financing difficulties.
- Re-look at allowable uses within zones to enable compatible, support commercial.

In addressing the first item, for purposes of this Master Plan, industry will be synonymous with manufacturing and related research and development activities, as defined by Standard Industrial Codes (SIC) 20 - 39. Under this broad heading, there are two classes of manufacturing: durable and non-durable goods. As we have seen, durable goods manufacturing is the predominant type in Nashua and New Hampshire as a whole. Most high-tech type jobs are classified as durable goods manufacturing; however, some are nondurable goods manufacturing, such as chemicals and allied products. The working assumption that “industry is synonymous with manufacturing” is not intended as the final word on the matter, however. It may be decided that the definition of industry, for the purposes of zoning, should be modified to include other enterprises that do not fall under the strict definition of manufacturing, but which would, nonetheless, be suitable in industrial districts.

In general, the recommendations of the Industrial Land Focus Group were still valid at decade’s end. Infrastructure and access issues still haunt the largest area of available industrial land in the City, the parcels north of Tara Boulevard just to the west of the Everett Turnpike. No single public, private or semi-public agency has undertaken a comprehensive, parcel-level inventory of available industrial land. Strategies to surmount impediments to industrial viability still need to be devised and implemented. These and other issues will be examined in more depth in the next section.

2. Findings of the Underused Buildings Focus Group

The Underused Buildings Focus Group arrived at the following problem statement:

“In the course of its investigation, the Industrial Buildings Focus Group determined that there is a mis-match
between the size and type of industrial space currently available and the size and type of space sought by
industrial firms looking to settle or expand in Nashua. There are also physical constraints impeding industrial
use of some building space; such as, antiquated electrical systems and wiring, inadequate communications
systems and lack of storage space, for example. There is no one location or agency responsible for maintaining
an inventory of all of the industrial space available in Nashua at any given time. Therefore, there may be spaces
available to some industries that remain unfilled because industrial users are not made aware of them. There is
also the issue of competing demands for the available space. With the recent retraction and downsizing of several
local industries, there may be less demand for space than in the 1980’s, for instance. The demands of the retail
and commercial sectors, however, have remained high throughout the 1980’s and 1990’s.”

The Focus Group recommended several actions for addressing the issues raised in the problem statement:

- Create a mechanism by which an inventory of industrial space can be assembled, maintained, continually
  updated, and made available to the public, developers, realtors, engineers, lawyers, accountants and public
  officials.
- Determine who should take the lead role in developing an industrial inventory;
- Identify and address any building code issues in the re-use of existing industrial space; in order to determine
  what these issues are, a survey of those who recently obtained building permits for such re-use could be
  conducted.
- Create an industrial matchmaking service to introduce those with industrial space for lease or sale to those
  looking for it.
- Explore the concept of “industrial current use” as a way of encouraging the use of available space in
  buildings.
- Survey those searching for industrial space in order to determine why there is a mis-match between available
  space and the needs of industry.
- Track the number of firms making inquiries into industrial space.
- Create a link between the databases of local realtors and the City of Nashua; and
- Create a revolving loan fund to upgrade systems and code related retrofit requirements.

The Underused Buildings Focus Group also examined the issue of erosion of industrial space through the
intrusion of other land uses, and made suggestions to address this. They looked at the need to update the City’s zoning
ordinance and other codes to bring Nashua’s regulations in-line with the needs of today’s industries. Their problem
statement and recommended actions on these issues are:

“Update the zoning and building codes where necessary and evaluate the erosion of industrially zoned areas.
The industrial focus group opined that the present zoning ordinance and building code may hamper the use of
some properties. The zoning ordinance has not been revised to reflect the increasingly technological and
information oriented nature of today’s industries. There is concern that some industrially zoned areas may be
“eroding” due to commercial encroachment. There is also the potential for tension or conflict between present
demand and the long-term highest and best use.”

- Determine which commercial uses are appropriate and complement industry.
- Consider a limit on commercial usage to address the erosion of industrial space and incompatible land uses.
- Consider which commercial uses should be allowed by right or special exception.
- Develop a hierarchy (major/minor) that can be used in determining what commercial uses are appropriate in
  certain industrial buildings and areas.
- Collapse duplicative reviews by several boards, where possible, into the jurisdiction of one board.
- Eliminate unnecessary special exception uses and make those allowed by right or administrative review of
  City staff.
- Survey industries to find which uses they believe are compatible with industrial uses.
- Develop an approval process flow chart.
• Create customized applications with checklists.
• Create a mechanism for computer disk submission of application and plan materials.
• Review handicapped parking and access regulations.
• Review sign regulations and ZBA actions to see where they may be overly restrictive.

As with the Industrial Lands Focus Group, most of the findings and recommendations of the Underused Buildings Focus Group remain valid. If anything, undertaking an inventory of available space for industry in existing buildings is even more difficult than an inventory of industrial land. Another significant challenge is matching the space needs of particular industries with the inventory of available space.

The following section will examine each of Nashua’s three industrial zoning districts in greater depth, focusing on their unique characteristics, spatial distribution, challenges and opportunities.

II. NASHUA’S INDUSTRIAL DISTRICTS: CHARACTERISTICS AND ANALYSIS

A. Park Industrial

Nashua’s Park Industrial (PI) districts were created in the 1960’s and 1970’s as a location for industrial parks and light industrial uses. The PI districts are located along the City’s major highways, namely the F.E. Everett Turnpike and Amherst Street (Route 101-A). There are five PI sub-areas. The total amount of land zoned PI is approximately 2,274 acres, or 62 % of Nashua’s total industrially zoned land. It is important to note that not all of this area is usable land, and includes roads, some water areas, and other unbuildable land.

1. Dimensional Regulations:

- Minimum lot area: 30,000 sq.ft.
- Maximum floor / area ratio: none
- Minimum lot frontage: 50 feet
- Minimum lot depth: 150 feet
- Minimum lot width at front setback line: 120 feet
- Minimum open space: 20 %
- Minimum front and side yards: 30 feet and 20 feet, Respectively
- Maximum building height: 45 feet, 4 stories
- Maximum building area: 40%

An example of typical Park Industrial (PI) district development.

2. Use Regulations:

The following is a selective look at the list of permitted, special exception, and prohibited uses in the PI district. It does not include all land uses listed in the Use Schedule, but rather is an overview of the major land use categories and those uses encountered most frequently.
**Residential:** Residential uses (both single- and multi-family) are prohibited as new uses in all of the industrial districts, therefore all homes found within are pre-existing, non-conforming uses, unless a variance was granted.

**Community Facilities:** Churches are permitted in all districts. Private non-profit, non-religious schools, colleges, trade schools and educational facilities are allowed by special exception. Municipal uses, such as equipment garages, City-owned recreational areas, and government buildings are permitted uses. Power plants and sewage treatment plants are permitted uses.

**Offices / Medical Facilities:** Business offices and services including but not limited to finance, insurance, and data processing are permitted in the PI district provided that buildings shall have a minimum floor area of 10,000 sq.ft., which can be occupied by multiple tenants. Medical facilities, such as hospitals and clinics, are permitted uses in the business districts, but not the industrial districts. The exception is that hospitals principally devoted to the provision of psychiatric or psychological services are permitted in the PI district, provided they are located no closer than 2,000 feet from any existing residential district.

**Retail and Other Commercial:** Most retail uses are prohibited in all the industrial districts. This includes retail stores and “sit down” restaurants. Automobile sales, both new and used, are prohibited in all of the industrial districts, though automobile and other vehicle repair, service stations and garages are allowed via special exception. Hotels and motels are allowed by special exception. The appropriateness of locating large-scale “other” commercial uses, such as movie theater complexes, large outdoor recreation uses, etc., should be carefully evaluated and weighed against the viability of manufacturing uses for a given site whenever such proposals are made. The amount of readily suitable, industrially zoned land is dwindling, and conversion of such land to commercial uses should only be allowed when it is determined that industrial use of such land is not practical or feasible.

**Wholesale Trade:** Wholesale trade and distribution is a permitted use in all industrial districts. Open storage of raw materials, finished goods and construction equipment is allowed by special exception in the PI and AI districts, and permitted by right in the GI district.

**Industrial:** Manufacturing and research and development are permitted uses in all industrial districts. Processing and treatment of raw materials is allowed by special exception. Railroad yards and related uses are permitted in all industrial districts, as are bus and railway terminals.

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3. **Sub-Areas Zoned Park Industrial:**

There are five Park Industrial sub-areas (see Maps IX-2 through 6). The sub-areas will be referred to as zones, such as PI zone 1, PI zone 2, etc. The first statistic given for the total amount of zoned land includes roads and minor water bodies, and therefore is not representative of the buildable area.

Land use statistics based on the tax records for each major industrial district (PI, GI, AI) will follow in the Discussion and Analysis sections. These statistics were obtained from the City’s Management Information Services (MIS) Department and are more reflective of the total amount of land in active use. This will include taxed but currently vacant land, including land in current use. The MIS land use statistics will also indicate the extent of commercial and other non-industrial land uses in each of the major districts.

**PI Zone 1:** PI Zone 1 is located in the extreme northwest quadrant of the City. It includes the land that has come to be known as “Parcel M.” The entire area of PI Zone 1 is approximately 961 acres. Of this, approximately 200 acres are designated by Pennichuck Water Works as a critical buffer area for water supply protection, with deed restrictions to that effect. Recently office, research and development and manufacturing uses have consumed approximately 100 acres in this Park Industrial area. Early in 2001, the City entered into negotiations that resulted in acquisition of 250 acres of land, enabling the City to protect this remaining land for conservation, passive recreation, and limited active recreation.
The most suitable land for industrial development is located in the northern section of the zone, abutting the B&M railroad line. The approximately 90 acres in this section would be accessed from the Northwest Boulevard extension, which was extended to approximately 3,675 feet in 2001. Recent proposed developments including the new Corning Lasertron site account for approximately 81 acres of new industry that has moved or expanded into this area. Conceptual plans of development for this area show that it is possible to site up to 2.3 million square feet of light industrial, R&D and office space in this location.

A small portion of PI Zone 1 has frontage on Amherst Street (Route 101A). This part of the zone has been developed primarily for commercial and retail uses, mostly through a combination of use variances and use special exceptions. The AI zoned portion of Amherst Street has also experienced the same trend towards commercial and retail uses. Over the last two decades, several sections of Amherst Street that were formerly zoned Park Industrial and Airport Industrial were rezoned to General Business and Highway Business. The issue of how to address this “creeping commercialization” will be examined in the analysis section that follows the sub-zone discussions.

**PI Zone 2:** PI Zone 2 is located to the west of Exit 8 of the F.E. Everett Turnpike, and includes Trafalgar Square. The entire area of PI Zone 2 is approximately 198 acres.

Trafalgar Square, Southwood Drive and North Southwood Drive are the primary roads serving the zone. PI Zone 2 has two of Nashua’s largest hotels / conference centers, several other office buildings, light industrial uses, a medical facility, and a U.S. Post Office distribution center.

Most land in PI Zone 2 is developed, but several parcels are still available. One of the region’s industrial real estate brokers recently concluded that there are about 50 developable acres remaining in the Southwood Corporate Park, with all infrastructure in place. This individual stated it might be possible to site up to 600,000 sq.ft. of building space on the remaining available land. From time to time, space for an industrial tenant may also open up in one of the existing facilities.

**PI Zone 3:** PI Zone 3 is centered on Exit 5 of the Turnpike and includes the Simon Street / Ledge Street area to the east, the High School and Riverside Street area to the west, and the Northeastern Boulevard area to the southwest. The entire area of PI Zone 3 is approximately 658 acres.

PI Zone 3 includes land on both sides of the Turnpike, as well as portions of City-owned Mine Falls Park and the Nashua Senior High School property, both of which are obviously not available for industrial use. The industrial land is located predominantly along Simon Street, Whipple Street and Ledge Street east of the Turnpike, Riverside Drive and Mercier Lane northwest of Exit 5, and Northeastern Boulevard, Pittsburgh Avenue, Congress Street and Progress Avenue southwest of Exit 5. PI Zone 3 is close to the center city, and is the oldest Park Industrial area in Nashua. The Northeastern Boulevard area, in particular, is of a different character from newer park industrial areas, such as in the vicinity of Tara Boulevard in PI Zone 4, for example. Whereas the newer Park Industrial areas tend to have larger buildings sited on larger lots with substantial vegetative screening between sites, the older PI areas generally have smaller buildings on smaller lots, with minimal vegetative buffers. Typically, the only green space is the landscaping provided around buildings and parking lots. This feature does not affect industrial viability, but does have an aesthetic impact by contributing to the “strip mall-like” appearance of some of the older PI areas.

In addition to industrial uses, the PI Zone 3, like PI Zone 2, has significant office development. There is a concentration of medical and small business offices on Simon Street, Northeastern Boulevard and on West Hollis Street. This sub-zone has minimal vacant land and in the future, most business opportunities will likely involve redevelopment.

PI Zone 3 has also experienced fairly significant commercial development, mostly through the granting of use variances and use special exceptions. These commercial uses are concentrated near the intersection of Northeastern Boulevard and Congress Street, and the intersection of Industrial Drive and Northeastern Boulevard. Several of these businesses are for take-out food, and as such may support nearby industrial (and office) establishments. Given that most commercial and retail uses are prohibited in the Park Industrial district, the question arises as to whether some degree of support commercial is a desirable blend in the land use mix that inevitably occurs in any zoning district. Should the
zoning ordinance be amended to permit some degree of support commercial? These questions will be raised in the analysis section.

PI Zone 4: PI Zone 4 is found just west of Exit 1 of the Turnpike and north of Spit Brook Road. The entire area of PI Zone 4 is approximately 377 acres.

Tara Boulevard and Dozer Road (unimproved) provide primary access into this zone. The southern portion of PI Zone 4 is currently occupied by the Sheraton - Tara Hotel, Compaq Computer and the Oracle facility. There are approximately 175 undeveloped acres in the northern portion of this zone. There is the potential for approximately 820,000 sq.ft. additional park industrial / office or hotel space in this area. However, there is currently no legal access to the property (Dozer Road not being an accepted City Street or a private road that meets minimum standards), and conditions placed on the property when it was zoned Park Industrial may limit development potential in the future.

Conditions of the rezoning to Park Industrial: “No development within the area of this rezoning may take place unless sufficient vehicular capacity exists at Exit 1 and/or Exit 2 (when constructed) as determined through acceptable traffic engineering studies conducted for the City of Nashua through its Planning Board. For the purpose of this rezoning, ‘sufficient vehicular capacity shall be determined as a condition where anticipated and existing vehicular volumes shall not exceed the capacity of the roads and/or intersections in question.’”

The new Turnpike Exit 2 does not provide additional access to this property. However, the upgrade to Exit 1 increased capacity and may be adequate to serve future development on this site. Additional access to the Turnpike could be considered.

PI Zone 5: PI Zone 5 is located in the southeast quadrant at the Massachusetts border just east of the Turnpike and west of the Daniel Webster Highway. The entire PI Zone 5 is about 79 acres.

The majority of the land in PI Zone 5 is owned by BAE Systems, a large defense contractor and Nashua’s largest private sector employer (including the Canal Street facility). Another approximately 20 acres is owned by a large wholesaler. Unless BAE Systems decides to subdivide their land in the southern part of this zone near the Massachusetts border, there is little further development potential in PI Zone 5.

Map IX – 2
4. Discussion and Analysis

a. Land Use Statistics
Table IX – 4 presents statistics for PI districts. The City’s Management Information Services (MIS) Department manages an assessing records database for all tax parcels in the City. The “total area in land use” given in these tables will be less than the total of the areas shown for each zoning sub-district in the above sections, since the assessing records are based on lot area, and do not include roadways, right-of-ways, small water bodies or other non-taxable property. As Table IX - 4 shows, the total taxable acreage in all PI zones is 1,899.21 acres. Each major category of land use is assigned a four-digit code called the MMC series. The five major classifications are: residential, commercial, industrial, current use (which can include land of any zoning designation - pertinent in that a majority of the land known as “Parcel M” is in current use), and government / municipal. The number of properties refers to the actual number of lots in that land use regardless of size, and is followed in the table by the percentage of total properties in that land use.

It is interesting to note that 47.8% of the properties in PI districts are commercial, whereas only 25.2% are industrial. Yet these figures do not provide the full picture, since they do not tell us how much actual land is in each use. When acreage figures are examined, it turns out that the majority of land, 54%, is industrial and 12.5% commercial. This reversal is due to the fact that commercial lots are generally much smaller than industrial lots. 22.7% of the land, representing only two properties, is in current use and is actually zoned industrial in this case. Only 45 properties on 67 acres, representing 3.5% of the taxable land, are in residential use. Therefore, it is reasonable to conclude that residential use is not a threat to the integrity of the PI districts. However, commercial use, with 188 properties on 237.7 acres accounting for 12.5% of the land, is making significant inroads into the PI districts.

### Table IX – 4
**INDUSTRIAL LAND USE STATISTICS**

<table>
<thead>
<tr>
<th>LAND USE</th>
<th>NUMBER OF PROPERTIES</th>
<th>% OF TOTAL # PROPERTIES IN DISTRICT</th>
<th>AREA IN LAND-USE (Acres)</th>
<th>% OF TOTAL ACREAGE IN DISTRICT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESIDENTIAL</td>
<td>45</td>
<td>11.5%</td>
<td>67</td>
<td>3.5%</td>
</tr>
<tr>
<td>COMMERCIAL</td>
<td>188</td>
<td>47.8%</td>
<td>237.7</td>
<td>12.5%</td>
</tr>
<tr>
<td>INDUSTRIAL</td>
<td>99</td>
<td>25.2%</td>
<td>1,024</td>
<td>54.0%</td>
</tr>
<tr>
<td>CURRENT USE</td>
<td>2</td>
<td>0.5%</td>
<td>430.51</td>
<td>22.7%</td>
</tr>
<tr>
<td>GOVT/MUNICIPAL</td>
<td>59</td>
<td>15.0%</td>
<td>140</td>
<td>7.4%</td>
</tr>
<tr>
<td>TOTALS</td>
<td>393</td>
<td>100.0%</td>
<td>1,899.21</td>
<td>100.1%</td>
</tr>
</tbody>
</table>

NOTES: The City of Nashua Assessing Dept. assigns each land use into a broad category, represented by a 4 digit series. A full listing of all of the land uses in each category is on file in the Planning Dept. Due to rounding, the percentages may not add up to 100%. Each broad category of land use includes both “active” sites with buildings, and vacant land in that particular category.

“Commercial” includes retail, commercial warehouses, most offices, auto related businesses, hotels, motels, and several other uses. “Industrial” includes factories, light manufacturing, R&D facilities, industrial offices sand and gravel operations, and vacant industrial land and buildings. “Gov’t/Municipal” includes land owned by the Federal, State or City governments.

It is most interesting to compare the percentage each land use is of the total number of properties in the District, as compared to the percentage each use’s area is of the total acreage in the district (land use category). This allows a broad scale assessment of the integrity of each land use category; i.e. how much residential or commercial “intrusion” has occurred.

### b. Commercial Intrusion and Uses

The greatest areas of “commercial intrusion” are along Amherst Street in PI Zone 1, and along Northeastern Boulevard and its side roads in PI Zone 3. As of Fall 2000, the available PI land fronting the western side of Amherst Street has been developed for commercial uses. There is the potential for redevelopment of PI land on the eastern side of
Amherst Street, presently occupied by a garden center and several small offices. The land formerly zoned PI in the vicinity of Round Pond, just east of this area, was rezoned to General Business in the 1980’s. Should that GB zone be extended to connect to the GB zone west of Celina Avenue? On the one hand, industrially zoned land with ready access to sewer and water lines is a somewhat rare and hence valuable commodity in Nashua; on the other hand, the smaller lots fronting on Amherst Street, and the commercial development on all sides, may indicate that the most logical use of this land is retail / commercial. Experience has shown that even during economic recession, the commercial / retail sector in Nashua has remained strong. Commercial / retail space is more valuable than industrial space on a square footage basis, which favors commercial development along Amherst Street’s frontage.

There are three major options for the Park Industrial land along Amherst Street. The first option is to leave it zoned Park Industrial. This option would obviously help to reserve as much land as possible for future industrial use, and preserve the conformity of those industrial uses already in existence. The second option would be to zone just the frontage portions for business use, either general business (GB) or highway business (HB). The existing industries would become non-conforming, but many of the commercial and retail uses would become conforming. It could be argued that this option would be going with the trend of increasing commercialization on Amherst Street. Larger parcels could be subdivided to provide land for commercial development. One disadvantage to this option is it would most likely exacerbate the already high traffic volumes on Amherst Street, and possibly lead to an increase in curb cuts and traffic signals. A third option would be to apply a Mixed-Use Overlay District to the frontage portion of Amherst Street that would allow for both commercial and industrial uses. With slight modification, the existing mixed-use district provisions of the Nashua Revised Ordinances (Division 20, Sections 16-552 - 558) could be applied to such a zone(s) on Amherst Street. The conformity of most existing uses would be preserved, although most new development proposals would likely be for commercial / retail, other than industrial uses. In mixed-use districts, the underlying zoning’s dimensional standards apply, although the Planning Board has the power to alter them where such modification is appropriate through site plan review. Given that in this instance the underlying zoning is industrial, most new development, even if retail / commercial, would be at a lesser density than would occur in a straight GB or HB district. The required Site Plan Suitability Report that must be submitted with all site plans in a mixed-use district would help to ensure that any proposed uses would be compatible with neighboring uses and the purpose of the district. As part of a Site Plan Suitability Report, traffic impacts, infrastructure impacts, adequacy of parking, and other factors must be found acceptable.

Which option is best? It is recommended that this issue be assigned a high priority for further study in the near future. The Amherst Street / Route 101-A corridor will remain attractive for development even in periods of economic recession. The future of this area should be planned in a comprehensive manner, not on a lot-by-lot basis as has occurred in the past.

As will be seen in the analysis for the Airport Industrial Zone, which has much greater frontage on Amherst Street, industrial uses have remained predominant on the side streets off Amherst Street, while lots fronting Amherst Street have been developed primarily for commercial or office uses. It is noted that offices are a permitted use in industrial districts, however, they tend not to provide the same degree of high-paying jobs, nor have the same multiplier effect on the local economy that industrial jobs do. The rezoning of limited areas to commercial or mixed-use should not unduly impact Nashua’s supply of industrial land, and will decrease the seeking of variances and the creation of non-conforming uses. This is the only PI area where such a rezoning of industrial land to commercial or mixed-use should be considered. Although there has been some commercial development in PI Zone 3, particularly along Northeastern Boulevard, most is scattered, and industrial use remains strong in this area. A certain degree of “support commercial” may also be desirable so industrial and office employees in the area can obtain convenience goods and food without driving outside the district, thus exacerbating mid-day traffic congestion.

c. **Infrastructure Issues**

One of the major infrastructure issues which faces all of the industrial districts is the need to provide increased transmission capacity / bandwidth for electronic and telecommunications. The need for state-of-the-art communication networks was emphasized by industry representatives in the 1994 Focus Groups. Nashua, and indeed all of New Hampshire, is at a competitive disadvantage when compared to other parts of the country that have state-of-the-art
communication networks. The City should work with State government to bring improved communications infrastructure into the State.

If any large-scale industrial or office park development is to occur in PI 1 and PI 4, sewer and water lines must be extended into these areas. This should not be too difficult for PI 4 and the portion of PI 1 along the B&M railroad tracks, as sewer and water lines are nearby. However, it may be a challenge to provide sewer and water to the more remote portions of PI 1 because of the long distances involved and the many wetland crossings that would be necessary. However, with the intent of the City to purchase approximately 300 acres of this land for conservation and recreation, it’s unlikely that this land will ever be developed.

B. General Industrial

The City’s oldest industrial areas are found in the General Industrial districts. Situated in or near the core of the City, these areas are generally on or close to the Nashua and Merrimack rivers. Most of the GI sub-areas have, or had, rail access. The City’s historic Millyard is zoned GI. One of the GI sub-areas discussed below is also a mixed-use district, per Division 20, section 16-552 of the Nashua Revised Ordinances.

1. Dimensional Regulations:

- Minimum lot area: **5,000 sq.ft.**
- Maximum floor / area ratio: **2.0**
- Minimum lot frontage: **50 feet**
- Minimum lot depth: **75 feet**
- Minimum lot width at front setback line: **50 feet**
- Minimum open space: **10 %**
- Minimum front and side yards: **10 feet**
- Maximum building area: **none**
- Maximum building height: **60 feet, 4 stories**

2. Use Regulations:

The following is a selective look at permitted, special exception, and prohibited uses in the GI district. It does not include all land uses listed in the Use Schedule, but rather provides an overview of the major land use categories and those uses encountered most frequently.

**Residential:** Residential uses (both single- and multi-family) are prohibited as new uses in all of the industrial districts. Therefore, all homes found within this district are pre-existing, non-conforming uses, unless a variance was granted.
Community Facilities: Churches are permitted in all districts. Private, non-profit, non-religious schools, colleges, trade schools and educational facilities are allowed by special exception. Municipal uses, such as equipment garages, City-owned recreational areas, and government buildings are permitted uses. Power plants and sewage treatment plants are permitted uses.

Offices / Medical Facilities: Primary office uses and buildings are not a permitted use in the GI district, though they are permitted in the PI and GI districts. Medical facilities, such as hospitals and clinics, are permitted uses in the business districts, but not in the industrial districts.

Retail and Other Commercial: Most retail uses are prohibited in all of the industrial districts. This includes retail stores and “sit down” restaurants. Interestingly, fast food establishments are permitted in the GI district, but not in either the PI or AI districts. Automobile sales, both new and used, are prohibited in all of the industrial districts, although automobile and other vehicle repair, service stations and garages are allowed via special exception.

Wholesale Trade: Wholesale trade and distribution is a permitted use in all of the industrial districts. Open storage of raw materials, finished goods and construction equipment is allowed by special exception by right in the GI district.

Industrial: Manufacturing and research and development are permitted uses in all of the industrial districts. Processing and treatment of raw materials is allowed by special exception. Railroad yards and related uses are permitted in all industrial districts, as are bus and railway terminals.

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3. Sub-Areas Zoned General Industrial:

There are seven General Industrial sub-areas. Please refer to the Maps IX – 7 through IX - 13 for the location of these zones.

GI Zone 1: GI Zone 1 is located in the extreme northeastern corner of the City, bordering the Merrimack River to the east and the Town of Merrimack to the north. Nashua’s Greeley Park is located immediately to the south. The entire area of GI Zone 1 is approximately 80 acres.

Zone 1 is the location of the former Kopper’s Corporation, which conducted wood treatment operations on the site for several decades. As a result, the site became heavily contaminated with creosote. The site is now owned and managed by the Beazer East Corporation, which is currently engaged in groundwater cleanup of the site. The City is currently considering several future land use options for this property.

GI Zone 2: GI Zone 2 is located just south of Broad Street between Exit 6 of the Turnpike and Broad Street’s intersection with Amherst Street. The entire area of GI Zone 2 is approximately 33 acres.

GI Zone 2 will be heavily impacted by the Broad Street Parkway (BSPW) project. The proposed route of the BSPW is just south of and parallel to the B&M railroad tracks. Several businesses will be taken by the project, including Nashua Outdoor Power Equipment (formerly the site of the Plywood Ranch), and the Fimbel Door Corporation (both the wholesale and retail operations). The other major industrial user is the Whitney Screw Corporation property, the subject of a brownfields environmental site investigation. The BSPW is needed to alleviate traffic congestion in central Nashua and to provide an additional crossing over the Nashua River (see the Transportation Element for a full description of the BSPW project.) GI Zone 2 is relatively small, and includes both commercial and residential uses along Broad and Fox streets and Broadview Avenue. Consideration should be given to rezoning the area to reflect the existing land uses.

GI Zone 3: GI Zone 3 is located along the Nashua River east of Mine Falls Park and encompasses the area known as the “Millyard.” The entire area of GI Zone 3 is approximately 99 acres.
GI Zone 3 is a Mixed-Use District per Nashua Revised Ordinances, Division 20, Section 16-552. As a Mixed-Use District, certain commercial and residential uses are permitted following Planning Board approval. The Millyard is the oldest industrial section of the City, and the canals that provided waterpower to the early mills extend into the Millyard from nearby Mine Falls Park. Most of the mill buildings still house industrial and warehousing operations. Two former mill buildings have been converted into upscale apartments, known as Clocktower Place. Most of GI 3 is located on the south side of the Nashua River, but there is a significant piece located on the north bank accessible from Charles Street, Franklin Street and Front Street. The City is developing plans for a riverfront park along the north bank of the River, which will complement the Riverfront Park recently completed on the south side off of Water Street.

The route of the Broad Street Parkway (BSPW) will go through the center of GI Zone 3, and cross the Nashua River at the eastern end of the large peninsula north of the Pine Street extension. Several mill buildings in this area will be taken for the BSPW; however, as part of the Parkway project, a fully signalized intersection will be provided near the present location of the Spine Road and Pine Street extension intersection. This interchange will improve access to and the visibility of the Millyard, which should benefit the remaining businesses. The overall effect of the BSPW on GI Zone 3, then, should be one of enhancing the area. In the short-term, some businesses will need to relocate, and several historic buildings will be taken; however, the improved access and visibility of the Millyard could very well lead to its revitalization and aesthetic improvement, all desirable outcomes for one of Nashua’s most significant historic and industrial areas.

GI Zone 4: GI Zone 4 is a very small area located just north of East Hollis Street between Spring and Spruce Streets. The entire area of GI Zone 4 is approximately 10 acres. The U.S. Post Office in downtown Nashua is at the western end of this sub-area.

The former Nashua Beef Company, now Speedy Muffler, was located in this zone, and there are a few remaining industrial uses in the zone, such as Nashua Foundries, Inc. The industrial areas on Mason, Quincy and Talbott streets seem underutilized and in some need of rehabilitation. This small area is still cohesive as an industrial zone, however, with only a small degree of commercial and residential intrusion. The area just south of GI Zone 4, which fronts East Hollis Street, is zoned Central Business / Mixed Use. Most of that frontage area has been developed for auto-related uses.

GI Zone 5: GI Zone 5 is Nashua’s largest area of General Industrial land, located at the eastern end of the City bordering the Merrimack River. Its northern boundary is just north of the confluence of the Nashua and Merrimack rivers. The zone extends southward to Nashua’s wastewater treatment facility (WWTF). The entire area of GI Zone 5 is approximately 367 acres.

GI Zone 5 is perhaps Nashua’s most diverse industrial district. It is also the largest of the GI Zones. GI Zone 5 covers a wide area, from Lock Street north of the Nashua River, to the Nashua WWTF south of the confluence of Salmon Brook and Nashua River. Many of Nashua’s oldest industrial establishments are found in GI Zone 5. While much of the land in the zone is devoted to industrial use, including such Nashua landmarks as the previous Sanders Corporation and the Henry Hanger Corporation, there are several distinct pockets of commercial and residential land use scattered throughout the zone. Most commercial and residential uses are non-conforming in industrial zones. Much of the housing stock in GI 5 is several decades old. The situation of GI Zone 5 raises several questions. First, should some of the pockets of non-conforming use be zoned out of industrial, to residential or commercial? Is it likely, even in the distant future, that potential industries will seek to purchase and consolidate residential properties in order to erect new industrial buildings? Is it likely industries will purchase commercial land to convert to industrial use? If the answer to these questions is most likely to be “No,” then it may make sense to rezone some of the non-industrial pockets to high-density residential (RB or RC) and / or commercial (CB, HB, GB or LB). Unlike most of the non-conforming uses in the PI or AI Districts, which were created through the granting of use variances, many non-conforming uses in the GI Districts are quite old and have been established for several decades.

GI Zone 6: GI Zone 6 is another very small area located just east of Exit 5 of the Turnpike, along West Hollis Street. The entire area of GI Zone 6 is approximately 6 acres.

Edgecomb Steel is the sole industrial user in this zone. GI Zone 6 is in close proximity to Park Industrial Zone 3,
and one logical question is whether GI Zone 6 should be incorporated into it.

**GI Zone 7:** GI Zone 7 is located in the southeast quadrant along the Merrimack River, starting just south of the Circumferential Highway (Sagamore) bridge south to the area north of the Pheasant Lane Mall General Business zone. The entire area of GI Zone 7 is approximately 128 acres.

GI Zone 7 is primarily the home of Hampshire Chemical Corporation, one of Nashua’s largest employers. Hampshire Chemical manufactures various chemicals used in industry, including organic specialty chemicals, soaps and shampoos. The Hampshire Chemical facility in Nashua employs approximately 350 people.

**Map IX - 7**
4. Discussion and Analysis

a. Land Use Statistics
It is interesting to note that the number of commercial and industrial properties in the GI zones is the same: 93 each, each representing 23.8% of all properties in the district. There are 174 residential properties, which account for 44.5% of properties in the district. These statistics are presented in Table IX – 5.

However, as for the other districts, the amount of land in each category paints a different picture. In all of the GI zones, 291.35 acres are in industrial use, which represents 63.5% of the land. 104 acres, representing 22.7% of the land, are in commercial use. 32.5 acres are in government/municipal use, and 30.5 acres are in residential use. The government and residential uses each account for only about 7% of land use in the district. Most of the residential properties are located in GI Zone 5, between the downtown and the Merrimack River. On a percentage basis, the GI Zones have the highest degree of commercial use of any industrial districts: nearly one-quarter of the land is in commercial use. The older GI Zones are, by nature, more mixed-use than other districts. For the most part, these areas were established prior to the adoption of zoning in the City, with worker housing, support retail and commercial establishments built into the framework of the neighborhoods. However, it may be worthwhile to examine the mix of uses in the GI Zones more closely, to determine whether areas that are primarily residential or commercial that are easily demarcated should be placed in a different zoning classification.

b. Commercial Intrusion and other non-industrial land uses

As seen above, nearly one-quarter of the land in the GI districts is in commercial or retail use. Most of this “commercial intrusion” is in GI 5, the large zone between downtown Nashua and the Merrimack River. The older GI zones evolved before zoning was instituted in the City, and the mix of residential and small-scale commercial uses was, in many cases, intentional. Mill workers often lived near the factories, and neighborhood grocery stores and shopping areas were developed within walking distance. This is still the nature of some of the commercial/retail uses occurring in the GI zones. These areas are defacto “Local Business” districts surrounded by industrial uses, with nearby residential neighborhoods. In other cases, however, larger scale commercial enterprises, such as auto dealerships, have been permitted to develop in the GI zones. As the likely trend for industrial growth is high-tech firms that will tend to site in the Park Industrial or Airport Industrial districts, it is perhaps unlikely that much in the way of new industry will come into the older GI zones.

<table>
<thead>
<tr>
<th>LAND USE</th>
<th>NUMBER OF PROPERTIES</th>
<th>% OF TOTAL # PROPERTIES IN DISTRICT</th>
<th>AREA IN LAND USE (Acres)</th>
<th>% OF TOTAL ACREAGE IN DISTRICT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESIDENTIAL</td>
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<td>44.5%</td>
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<td>6.6%</td>
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<tr>
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<td>93</td>
<td>23.8%</td>
<td>104.15</td>
<td>22.7%</td>
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<td>93</td>
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<td>63.5%</td>
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<tr>
<td>GOVT./MUNICIPAL</td>
<td>31</td>
<td>7.9%</td>
<td>32.5</td>
<td>7.0%</td>
</tr>
<tr>
<td>TOTALS</td>
<td>391</td>
<td>100.0%</td>
<td>458.5</td>
<td>99.8%</td>
</tr>
</tbody>
</table>

Notes: The City of Nashua Assessing Dept. assigns each land use into a broad category, represented by a 4 digit series. A full listing of all of the land uses in each category is on file in the Planning Dept. Due to rounding, the percentages many not add up to 100%. Each broad category of land use includes both “active” sites with buildings and vacant land in that particular category. “Commercial” includes retail, commercial warehouses, most offices, auto-related businesses, hotels and motels, and several other uses. “Industrial” includes factories, light manufacturing, R&D facilities, industrial offices, sand and gravel operations, and vacant industrial lands and buildings. “Gov’t/Municipal” includes land owned by the Federal, State, or City governments.

It is interesting to compare the percentage of each land use of the total number of properties in the district, with the percentage each use’s area is of the total acreage in the district (land use category). This allows a broad-scale assessment of the integrity of each land use category, i.e. how much residential or commercial “intrusion” is occurring in each industrial zone.
One exception may be increased activity at the Millyard once it is opened up through increased access and visibility via the Broad Street Parkway. Small “incubator” firms have been locating in some of the larger mill buildings there in recent years. If this trend continues, the Millyard may be an ideal place for small, start-up industries that, as they grow, may seek larger buildings or lots in the Park Industrial or Airport Industrial districts.

In any case, it will be important for the City to do everything possible to retain and assist existing industries in the GI zones, which provide employment to a large number of Nashua’s citizens. As far as non-conforming uses are concerned, one recommendation would be to delineate areas that are predominantly commercial or residential, and rezone them for their appropriate use and density. The advantage is that these uses will no longer be non-conforming, and may reasonably be modified or expanded without a variance. An example of how this might be done is shown in Map IX – 14, where areas that are predominantly residential and commercial in GI Zone 5 have been highlighted.

Alternately, the entire area of GI Zone 5 could be designated a Mixed-Use District, either per Division 20 of the Nashua Zoning Ordinances, as it currently applies to the GI / MU area (the Millyard and surroundings) and the CB / MU area (the downtown), or, as modified for the special needs of the area of GI Zone 5. Mixed-Use Districts can accommodate alternative uses such as residential and commercial, given that certain standards are met that ensure that any such new development is compatible with what already exists in the area. Any expansion or change to a commercial use that would require the submittal of a site plan would then fall under the Mixed-Use District guidelines, providing an added degree of review authority to ensure compatible development. It is recommended that any rezoning effort, whether it be to “outzone” residential and commercial areas, or create a Mixed-Use Overlay District, be done only after careful study.

c. Infrastructure Issues

The GI zones for the most part are located in the older parts of the City, and have been served with sewer and water for over a century. Some of these areas have combined sewers, where surface runoff is mixed with waste from residences and businesses. During large storms, some of this wastewater is discharged directly into the Nashua and Merrimack rivers. The City is in the process of addressing this issue, which is discussed in the Utilities and Public Services Element.

Many of the GI zones are also located near rail lines, although the railroads are not operating as frequently as they did in the past. With the growing potential reactivation of passenger rail service, there is an opportunity to reshape the character of development around the GI 5 area of East Hollis and Bridge streets. Most modern-day businesses conduct the majority of their shipping with trucks. Perhaps the biggest obstacle, or inconvenience, is the location of the GI Zones in densely populated areas or in out-of-the-way places, such as the Millyard (though the Broad Street Parkway will open up that particular GI area). In such cases, workers and truck traffic must cut through residential areas on their way to the industrial buildings. Such traffic conflicts may become a larger issue for these underutilized areas as uses are intensified, as could happen for GI Zone 1 (the Beazer East property), should that ever be developed for industrial use.

The issue of state-of-the-art communication lines and telecommunications applies to the GI zones as much as to the other industrial districts. The availability of such state-of-the-art technology would increase the value of all of Nashua’s industrial space, and could make older mill space more valuable and attractive to smaller start-ups, including high-tech firms.

Map IX – 14: GI Area, with Areas for Potential Rezoning
C. Airport Industrial

The AI district was created in 1972 to provide for the general welfare of the Airport and its environs. The AI district is an industrial district, similar to Park Industrial, and was originally envisioned as supporting the effective
operation of the Airport by providing an area for airport-related and airport-compatible uses. Nashua is in an excellent position to target air-related industries due to the presence of the regional FAA office in Burlington, MA, which issues approvals for engines and propellers. The FAA Air Traffic Control Center on Northeastern Boulevard is also a potential source of employees and ideas for aviation related, start-up industries.

1. Dimensional Regulations:

- Minimum lot area: **40,000 sq.ft.**
- Maximum floor / area ratio: **none**  
  \( PI = 30,000 \text{ sq.ft.} \)
- Minimum lot depth: **200 feet**
- Minimum lot frontage: **50 feet**  
  \( PI = 150' \)
- Minimum lot width at front setback line: **160 feet**
- Minimum open space: **20 %**  
  \( PI \text{ is 120 feet} \)
- Maximum building area: **40 %**
- Minimum front and side yards: **30 feet**
- Maximum building height: **45 feet, 2 stories**  
  \( PI \text{ is 45', with 4 stories} \)

Airport Industrial (AI) districts development and Activity:

2. Use Regulations:

The following is a selective look at the list of permitted, special exception, and prohibited uses in the AI district. It does not include all land uses listed in the Use Schedule, but is an overview of the major land use categories and those uses encountered most frequently.

**Residential:** Residential uses (both single- and multi-family) are prohibited as new uses in all of the industrial districts. Therefore, all homes found within these districts are pre-existing, non-conforming uses, unless a variance was granted.

**Community Facilities:** Churches are permitted in all districts. Private non-profit, non-religious schools, colleges, trade schools and educational facilities are allowed by special exception. Municipal uses, such as equipment garages, City-owned recreational areas, and government buildings are permitted uses. Power plants and sewage treatment plants are permitted uses.

**Offices / Medical Facilities:** Business offices and services including but not limited to finance, insurance, and data processing are permitted in the AI district provided that buildings shall have a minimum floor area of 10,000 sq.ft., which can be occupied by multiple tenants. Medical facilities, such as hospitals and clinics, are permitted uses in the business districts, but not in the industrial districts.

**Retail and Other Commercial:** Most retail uses are prohibited in all of the industrial districts. This includes retail stores and “sit down” restaurants. Automobile sales, both new and used, are prohibited in all of the industrial districts, although automobile and other vehicle repair, service stations and garages allowed via special exception. Hotels and motels are allowed by special exception.

**Wholesale Trade:** Wholesale trade and distribution is a permitted use in all of the industrial districts. Open storage of raw materials, finished goods and construction equipment is allowed by special exception in AI district.

**Industrial:** Manufacturing and research and development are permitted uses in all of the industrial districts. Processing and treatment of raw materials is not allowed in the AI district as it is in the other industrial districts. Railroad yards and related uses are permitted in all industrial districts, as are bus and railway terminals.
3. Sub-Areas Zoned Airport Industrial

There are only two sub-areas for consideration in the Airport Industrial Zone. Please refer to Map IX – 15 for the location of these sub-areas.

_AI Zone between the B&M railroad tracks and Amherst Street:

The AI zoned area between the B&M railroad tracks and Amherst Street is approximately 191 acres, or 27% of the entire AI District’s 691 acres. This part of the AI District has a very different character from the larger section south and west of the railroad tracks. Parcels with direct frontage on Amherst Street were developed primarily for commercial use, through a combination of use variances and use special exceptions. The remainder of the area is a mix of office and industrial use. It is important to note that the minimum lot size of the AI district, 40,000 sq.ft., is significantly larger than the 20,000 sq.ft. minimum of the HB district and 10,000 sq.ft. minimum of the GB district. The result is commercial development on larger lots, and thus a lesser overall density of development than would normally occur in a business district. This lower overall density of development may be desirable from a land use and traffic generation standpoint, a point to remember when considering recommended future land uses for the Amherst Street corridor.

Field surveys conducted by the Planning Department in summer 1997 indicate that industrial and office uses still predominate on the side streets west of Amherst Street, while Amherst Street remains predominantly commercial. Table IX – 6 presents property, land use, and acreage statistics for this zone. The side streets include Airport Road, Avard Street, Cotton Road (Birch Pond complex), Townsend West, and Deerwood Drive. Deerwood Drive differs from the other roads in that it has been developed with residential uses (single-family homes and an apartment complex), rather than industrial or commercial uses. Most of the industrial buildings found on these side streets are close to 100% occupancy.

_AI Zone west of the B&M railroad tracks:

The AI zoned area west of the railroad tracks includes the Boire Field Airport, which is currently at 391 acres. The Airport accounts for the majority of land west of the rail line. However, there are several streets within this area that have been developed with industrial uses. These include Charron Avenue, Bud Way, and Perimeter Road. Airport Industrial land also exists at the westernmost ends of Tanguay Avenue and Calawa Avenue, although most of their lengths are in the General Business District.

Map IX – 15
4. Discussion and Analysis

a. Land Use Statistics
Table IX – 6 presents statistics for AI districts. In the AI district as a whole, 18.3 % of the properties are commercial, 67.3 % are airport-related, and only 6.7 % are industrial. Yet as for the Park Industrial district, these figures do not give the full picture, since they do not tell us how much actual land is in each use. When the acreage figures are examined, it turns out that the majority of land, 62 %, is the Boire Field Airport (gov’t/municipal), 15.6 % (113.5 acres) is commercial and 12.7 % (92.7 acres) is industrial. An interesting finding is that active commercial acreage exceeds active industrial acreage. This is only true for the Airport Industrial district.

Much of this commercial acreage is found in the Amherst Street / Route 101A corridor. The AI district has approximately 5,200 feet, or nearly a mile, of frontage on Amherst Street. In contrast, the PI district has only 1,500 feet of frontage on both sides of Amherst Street, and a 1,200 foot portion with frontage on the eastern side only. The side streets west of Amherst Street have been developed primarily with industrial and office uses, while lots with direct frontage on Amherst Street have been developed primarily for commercial uses.

b. Commercial Intrusion and Uses

As discussed for Park Industrial, there are several options to consider in addressing the issue of commercial intrusion along the AI zoned portions of Amherst Street, including: 1) no action; 2) partial rezone of this section of the AI zone to GB or HB; 3) designate a Mixed-Use District for the AI zoned frontage on Amherst Street. In 1988, the City’s Long-Range Planner undertook a study of these options, outlining their pros and cons. This analysis from the late 1980’s is provided below to add a historical perspective. The text of the report is included in smaller type, with commentary notes that appear in italics.

1) No Action: In keeping with the underlying rationale for the zone, the no action scenario would impose greater restrictions on density, height, and factors relating to airport hazards and safety than if it were zoned commercially. The advantages of the no action scenario include: a. The AI district requires larger lots and a greater amount of open space than commercial zones, b. Fewer permitted uses would allow greater control over development, c. If the railroad were to discontinue, the present low density and height restrictions would not preclude expansion of the Airport.

The disadvantages of the no action alternative include: a. that it encourages the seeking of variances, with the resultant haphazard evolution of Amherst Street, and b. the AI district imposes restrictions which limit innovative design and construction, as well as imposing airport related restrictions on an area which has evolved into a commercial area.

### TABLE IX – 6

**INDUSTRIAL LAND USE STATISTICS**

**AIRPORT INDUSTRIAL DISTRICT**

<table>
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<tr>
<th>LAND USE</th>
<th>NUMBER OF PROPERTIES</th>
<th>% OF TOTAL # PROPERTIES IN DISTRICT</th>
<th>AREA IN LAND USE (Acres)</th>
<th>% OF TOTAL ACREAGE IN DISTRICT</th>
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<tbody>
<tr>
<td>RESIDENTIAL</td>
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<td>COMMERCIAL</td>
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<td>17</td>
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<td>GOVT./MUNICIPAL</td>
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<td>6.7%</td>
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<td>TOTALS</td>
<td>251</td>
<td>99.8%</td>
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</table>

Notes: The City of Nashua Assessing Dept. assigns each land use into a broad category, represented by a 4 digit series. A full listing of all of the land uses in each category is on file in the Planning Dept. Due to rounding, the percentages may not add up to 100%. Each broad category of land use includes both “active” sites with buildings and vacant land in that particular category. “Commercial” includes retail, commercial warehouses, most offices, auto-related businesses, hotels and motels, and several other uses. “Industrial” includes factories, light manufacturing, R&D facilities, industrial offices, sand and gravel operations, and vacant industrial lands and buildings. “Govt./Municipal includes land owned by the Federal State or City governments.
It is most interesting to compare the percentage each land use is of the total number of properties in the district, as compared to the percentage each use's area is on the total acreage in the district (land use category). This allows a broad scale assessment of the integrity of each land use category, i.e. how much residential or commercial “intrusion” is occurring in each industrial zone.

2) Partial Rezone: This option proposes a partial rezoning of the AI district to a strip commercial district (similar to HB or GB), specifically the border with frontage on Amherst Street.

Advantages include:

a) Less constricting than rezoning the entire area between the railroad tracks and Amherst Street. (Note: rezoning the entire area between the tracks and Amherst Street to commercial would make many of the industrial uses non-conforming, not a desirable outcome.)

b) The airport clearzone required for the present and proposed runways would not impact this area because the clearzones do not extend beyond the railroad tracks at the property line of the Airport.

c) Keeping part of the area between the railroad tracks and Amherst Street zoned AI would help to keep only uses compatible with the Airport as direct abutters.

d) Effects of a partial rezoning would allow uses by right that are currently not permitted, and would amend the dimensional and density regulations, resulting in fewer variance and special exception requests.

Disadvantages to a partial rezone include:

a) The maximum number of stories allowed would double from 2 to 4, and maximum height would increase from 45 to 60 feet. (Note: But would this be a problem for areas beyond the clearzones?)

b) Difficulty in delineating a new zone line. How far from Amherst Street should the line be drawn? Should it depend on present or likely future land uses?

c) Should the line bisect present lots or follow lot line boundaries? (Note: many of the lots in this area extend all the way from Amherst Street to the railroad ROW, meaning that rezoning would split many lots.)

3. Develop a Mixed-Use District for the AI zoned frontage on Amherst Street: In order to preserve as much industrially zoned land as possible while allowing flexibility for the immediate frontage on Amherst Street, the most sensible application of an overlay district may not be for the entire area between the railroad tracks and Amherst Street, but rather only to a certain depth along Amherst Street. The mixed-use district would strive to:

a) Keep as many existing uses as possible conforming.

b) Encourage industrial use in the rear (towards railroad tracks) and on the side streets off of Amherst Street; and

c) Ensure quality commercial development along the frontage of 101-A.

The Highway Business and General Business zones that abut the AI zone on Amherst Street extend back from the centerline 300 and 250 feet, respectively. By applying a Mixed-Use District only to this frontage area, some commercial uses could be allowed, flexible dimensional standards could be applied, yet the industrial uses located further down the side streets west of Amherst Street would not be at risk from “by right” commercial development. An overlay district applied in such a manner would solve the problem of zoning by variance that currently exists along the immediate frontage of Amherst Street, yet would preserve the integrity of industrial zoning on the side streets which have been developed primarily for industrial use.

As for the Park Industrial District, this Plan recommends further study to determine which option is in the best long-term interests of the City. This should be undertaken early in the implementation phase of the Master Plan.

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5. Airport Industrial compared to Park Industrial

The Airport Industrial District is very similar to the Park Industrial District, particularly in relation to dimensional requirements and permitted uses. Dimensionally, AI requires slightly larger lots than PI, with a minimum lot area of
40,000 s.f. rather than 30,000 s.f.. The lots also must be slightly deeper (200 feet vs. 150 feet) and wider (160 feet vs.
120 feet). The maximum height limitation is 45 feet for both districts; however the AI District is limited to two stories
compared to four stories for the PI District. Other than these differences, the two districts are virtually identical from a
dimensional standpoint. Differences between the two districts are presented below.

Allowed in Park Industrial, but not in Airport Industrial:

- Psychiatric hospitals are permitted in PI, but not in AI.
- Proprietary schools, colleges, business or trade schools are allowed by special exception in PI, but not in AI.
- Private day nursery or kindergartens are allowed by special exception in PI, but not in AI.
- Miscellaneous business repair services are allowed by special exception in PI, but not in AI.
- Outdoor concerts on open space exceeding 5 acres are permitted in PI, but not in AI.
- Removal of sand and gravel and other raw materials is allowed by special exception in PI, but not in AI.
- Processing and treatment of raw materials is allowed by special exception in PI, but not in AI.
- Construction industry, including suppliers, is permitted in PI, but not in AI.

Allowed in Airport Industrial, but not in Park Industrial:

- Establishments selling new and used aircraft, aircraft supplies, and accessories are permitted in AI, but not in PI.
- Airports are allowed in AI, but not in PI.

The issue from a Master Plan perspective is whether these differences are substantial enough to warrant the
continuation of two very similar, but legally distinct, industrial districts, or if Airport Industrial should be eliminated as a
distinct district, and absorbed into Park Industrial. Certainly, it is important that airport-related activities be allowed to
continue as a conforming use in the area now zoned AI. It is also very important that any buildings constructed in the
vicinity of the Airport not conflict or interfere with the operations of the Airport. Limitations on building height and the
placement of communication towers are important aspects of airport-compatible development. The question from a
planning perspective is whether this can be done without a separate zoning district? Before any actions are proposed to
modify or absorb the Airport Industrial District into Park Industrial, it is recommended that meetings take place between
City officials, the Airport Authority, and business owners in the AI District. A series of such roundtable meetings may
uncover issues not considered here, which will help to fine-tune any action taken on this matter.

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III. SUMMARY

Through this general discussion and analysis of industrial districts, it was concluded that:

- Although Nashua has nearly 18% of its gross land area zoned industrial, vacant industrial land that is ready for
development in the near future is relatively scarce. There are approximately 300 acres of vacant industrial land
suitable for development once that issues of access and infrastructure (primarily sewer and water) are resolved.

- Between 1986 and 1993, the City lost approximately 8,500 manufacturing jobs, and the manufacturing share of
the workforce dropped from nearly 50% in the mid-1980’s to 25% by 1993. Manufacturing has recently begun to
rebound, but its share is not likely to grow significantly, in part due to the rapid expansion of the service sector.
• Manufacturing is still a vital component of the City’s economy, and manufacturing jobs still pay higher than average wages. In 1996, 24% of the City’s workforce was employed in manufacturing, and those workers earned an average weekly wage that was nearly 50% higher than the average for all employment sectors.

• The professional, paraprofessional, and technical occupations group is predicted to grow the fastest over the next decade, reaching 32% of statewide employment in 2006. Within this group, the following occupations are expected to have the highest growth rates over the next decade: system analysts, computer engineers, electronic pagination system workers, and computer support specialists. All of these occupations are supportive of high-tech enterprises.

• As of 1996, 9,818 or 83% of Nashua’s 11,808 manufacturing workers were employed in durable goods manufacturing, the majority of these in just two SIC classifications: industrial and commercial machinery and computer equipment, and electronic and other electrical equipment and components.

• If Nashua’s remaining vacant industrial land is developed for its zoned purposes, there could be 3,300 to 4,300 new industrial jobs by build-out.

• All Industrial Districts had significant commercial intrusion, ranging from 12.5% of the land in the PI District, to 23% of the land in the GI District. There are three major options in addressing this issue: 1. Limited rezoning of some areas to commercial, 2. Application of a Mixed-Use Overlay District approach, and 3. No Action. It is recommended that these options receive further study before any zoning amendments are proposed.

• One of the most important infrastructure issues facing Nashua and the region is the need for state-of-the-art electronic transmission and telecommunication lines. New Hampshire lags behind other regions of the United States in the availability of wide-band transmission lines, which could impact the area’s ability to attract and retain industry.

• Nashua’s zoning ordinance needs to be revised to address the current state of industry. For example, one category in the Table of Permitted Uses, manufacturing, covers the spectrum from small start-up firms to large heavy industrial users. A more refined Table of Permitted Uses could lead to better land use outcomes.

• Further study should be given to whether a separate Airport Industrial District is still desirable. If, after careful analysis, it is determined that a separate AI District is an outmoded concept, then the area presently zoned AI could be rezoned to Park Industrial.

One of Nashua’s industrial real estate brokers recently opined (November 1998) on the status of available industrial space and land in Nashua, and what the City can do to improve the future outlook of industry. The main points raised were:

• Nashua must do all it can to retain existing industries.

• The City should be flexible in working with existing businesses that seek to expand, and be willing to modify City requirements when doing so will ensure that businesses will stay and expand in Nashua.

• Software should be the primary type of industry that the City targets.

• The City should work to provide spaces for small businesses to expand into as they grow beyond the incubator stage. The City should investigate the possibility of instituting “pre-approved” (and subdivided) industrial sites, which could be occupied quickly when industries are seeking to locate or expand in the City. (Note: It is recommended that if such pre-approval of sites ever occurs, that applicants still go through the Site Plan approval process to ensure that all aspects of a development proposal receive the appropriate level of review to ensure environmentally sound development that is compatible with nearby land uses. Pre-approval and subdivision of industrial land could speed up the approval process, however, which is the main objective.)
For those seeking to build quickly (as of 1998), there is very little available, suitable industrial land of 10 or more acres. There is a fairly large amount of vacant, industrially zoned land, but most of it suffers from either a lack of adequate access and infrastructure, such as sewer and water lines.

The City should take an active role in upgrading communications infrastructure to meet the needs of high-tech industry, with an emphasis on fiber optics and wideband transmission lines.

The ideal situation for the “average” industrial firm seeking to locate in the area would be a 20,000 sq. ft. building on 3 acres of land. This arrangement would be suitable for most small- to medium-sized high-tech and computer firms. For start-up firms, the ideal situation would be 2,000 - 3,000 sq. ft. of subdivided ground floor space in existing industrial buildings. This would include some office, storage, and manufacturing space. There are many older mill buildings in the City that, with rehabilitation, would be ideal for this type of redevelopment. Indeed, a few have already been used in this manner; however, much of Nashua’s mill space is not in “move in condition,” and the rehabilitation necessary to make old mill buildings suitable for smaller, high-tech companies can be quite expensive. The City may want to provide assistance to the private sector by pursuing funding sources for the rehabilitation of its older mill buildings.
X. TRANSPORTATION ELEMENT

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X. TRANSPORTATION ELEMENT

I. EXECUTIVE SUMMARY

Purpose

A city’s spatial layout is greatly affected by the development of its transportation system. The transportation system has a significant affect on the quality of life and economic viability of the city. The city, in its regulation of land use and through its decisions to expand infrastructure, plays an important role in the evolution of development patterns. Therefore, attention should be given to the impact that public policies have on the interconnected land use and transportation systems. The purpose of this Transportation Element is to develop a vision for the future direction of the City of Nashua’s transportation system.

Existing Conditions and Analysis

The data for this element was compiled by the Nashua Regional Planning Commission (NRPC) staff. Map X – 1 shows the intersections that were studied, as well as additional intersections recommended for study. Traffic counts were updated by the NRPC staff and compiled from historic data and previous traffic studies in Nashua. The counts include manual peak hour turning movement counts and 24-hour automatic traffic recorder counts. Level-of-Service analysis was performed to determine capacity deficiencies at several key intersections in Nashua:

- Railroad Square (Main St./Concord St./Amherst St.).
- Canal St./Franklin St.
- Amherst St./Broad St.
- Route 101A/Thornton Rd.
- Charron Ave./Pine Hill Rd.
- Hollis St./Allds St.
- Lamb Rd./East Dunstable Rd.
- Daniel Webster Highway/Sagamore Bridge.
Accident statistics were obtained from the New Hampshire Department of Transportation (NHDOT) for the latest available three-year period (1995-1996-1997). The intersections with the highest number of accidents during this period are as follows:

1. Daniel Webster Highway/Spit Brook Road – 93 accidents.
2. NH 101A/Somerset Parkway – 83 accidents.
3. Main Street/Canal Street/Franklin Street – 69 accidents.
4. Main Street/NH 111 (Hollis Street) – 67 accidents.
5. Main Street/Kinsley Street/Spring Street – 54 accidents.

**TMA Feasibility**

The NRPC completed a Transportation Management Association (TMA) feasibility study in 1998. NRPC has been investigating the desire and support for a TMA with the Nashua Chamber of Commerce, the South Nashua Merchants Group, and employers in Nashua. A TMA will help to address traffic problems that occur as a result of economic growth and will contribute towards achieving federal air quality standards required for the region in the 1990 Clean Air Act Amendments.

**Air Quality**

The City of Nashua is designated as an area in violation of federal standards for air quality for carbon monoxide (CO). In addition, the City of Nashua and the surrounding region of Nashua are in violation of federal standards for ozone. The State of New Hampshire has developed an emissions budget to reduce emissions from stationary and mobile sources and to achieve attainment in air quality standards. The emissions output (carbon monoxide and ozone emissions) resulting from new highway and transportation projects listed in the Nashua region’s Transportation Improvement Program (TIP) must conform to the budget’s attainment goals in order to be in compliance with federal mandates. The air quality conformity for the Nashua region is described in the *Long Range Regional Transportation Plan and TIP*, which is endorsed by the NRPC for submission to state and federal agencies.

**Pedestrian and Transit-Oriented Development**

The cumulative impacts of increased dependence on automobiles include traffic congestion, air pollution, noise pollution, and increased taxes and tolls to pay for new highway projects. In addition, the social and aesthetic impacts include less cohesive neighborhoods, loss of open space, and strip mall commercial development, as well as specific health issues created by a more sedentary lifestyle. Pedestrian-oriented development and transit-oriented development design guidelines include provisions for pedestrian circulation to effectively enhance the ridership of a bus system. The City should incorporate elements of pedestrian-oriented development and transit-oriented development in the site design review process and in the zoning ordinance to improve transit ridership and to decrease dependence on the automobile.

**Access Management**

One aspect of access management is the process of managing the placement of curb cuts, medians, and traffic controls on arterials to prevent loss of road capacity and to reduce turning movement conflicts. Road corridors in Nashua where access management techniques can be used to enhance capacity and safety include NH 101A, NH 130, NH 111, NH 111A, and Daniel Webster Highway.
Future Conditions Analysis

The NRPC has developed a MINUTP traffic model for forecasting traffic in the Nashua region. A No-Build highway network and Build highway network were developed for the year 2020. The No-Build year 2020 network consists of highway and transportation projects that have been completed, are already underway, or have been approved for funding; but do not include the Broad Street Parkway or the Circumferential Highway. The Build year 2020 network consists of a future network that includes both the Broad Street Parkway and the Circumferential Highway. The results of the future model runs show substantial decreases in year 2020 traffic under Build versus No-Build for Main Street, Concord Street, Kinsley Street, the Sagamore Bridge, and the Taylor Falls Bridge.

The NRPC traffic model was also utilized to forecast traffic for two different future road scenarios proposed by the City Planning Department and traffic engineer. The two scenarios are described as follows:

- 1. A connection between NH 130 and NH 111 over the Nashua River west of the FEE Turnpike (potentially through the site of the new high school on Broad Street).
- 2. A connection over the FEE Turnpike between Lund Road and Northeastern Blvd.

The model outputs show that the scenarios would result in significant changes in traffic. Scenario 1 would decrease traffic on the NH 111 and NH 130 between the Turnpike and Coburn Ave. However, traffic would increase on NH 130 west of Coburn Ave., the area west of the Turnpike along Main Dunstable Road, and Dublin Ave. Scenario 2 would decrease traffic on Harris Rd. and the eastern section of Northeastern Blvd., but would cause significant increases on Lund Rd.; the western portion of Northeastern Blvd.; Almont and Nowell streets; and Anvil Drive. The NRPC traffic model is limited to forecasting average daily traffic (24-hour volumes). Further traffic studies that include peak hour analyses should be conducted to detail the impacts of all the proposed scenarios.

Passenger Rail

In 1991, special state legislation was passed that established a working group charged with investigating the feasibility of extending the existing Boston-to-Lowell passenger rail line to Nashua. In 1998, the Nashua-Lowell Commuter Rail extension was identified in the TEA-21 Legislation as a potential New Starts project. In 1999, one million dollars was guaranteed to the Nashua-Lowell project through the appropriations process for FY 2000. These funds would enable the project to move forward to the preliminary engineering phase. Key benefits that have been identified in conjunction with a potential service extension include:

- Improved mobility for the citizens of the Nashua region who travel to Boston on a regular or periodic basis.
- Upgrading the tracks will improve the competitiveness of freight rail and encourage industrial development along the New Hampshire Main Line and feeder lines.
- A number of environmental benefits including less vehicular congestion along major arterials, fuel savings, and a reduction in air pollutants.

II. INTRODUCTION AND OVERVIEW

A. Goals, Objectives and Recommendations

Over the past four decades, Nashua has experienced an increased dependence on the automobile. Nashua’s population has increased 52 percent since 1970. Traffic on the City’s arterials and key roads has also increased significantly (see Table X – 1). The City’s development patterns have been geared toward auto dependency, as seen
along Daniel Webster Highway in South Nashua and NH 101A in Northwest Nashua. Residential developments, both single-family and multi-unit, have also been geared toward automobile dependency, despite the establishment of the CITYBUS transit system. Residents are commuting longer distances to work, and are traveling farther for goods and services than ever before. On the other hand, Nashua maintains a discernable, vibrant downtown where neighbors can still greet one another on the sidewalks, and where many services and stores are still within walking distance of neighborhoods.

The following goals and objectives have been developed to enhance the existing transportation system and road network and to reduce traffic congestion:

**GOAL:** A transportation system that comprehensively serves the transportation needs of our residents and businesses and enhances quality of life.

1. **OBJECTIVE:** PERSONAL AND COMMERCIAL MOTORIZED TRANSPORTATION

   Develop a comprehensive management plan for the City’s roadways that provides smooth transitions and linkages to the state highway system.

   **Recommendations:**
   
a. Develop a functional road classification system for the City, and classify all roads.
   b. Maintain all roads and bridges consistent with their functional road classification and traffic volumes.
   c. Specify physical and safety standards for all classes of roads in the City.
   d. Consider transportation linkages with the region and the State when undertaking any transportation planning.
   e. Ensure that new subdivision roads tie into the existing road network in a way that eases the flow of traffic and encourages the optimal distribution of trips throughout the City.
   f. Identify hazardous road segments or intersections, rank them in priority for improvement, and work to remedy them as quickly as possible.
   g. Complete an intersection study and rank intersections with regard to future traffic signal needs.

2. **OBJECTIVE:** TRAFFIC

   Minimize the adverse impact of traffic to the maximum extent practicable.

   **Recommendations:**
   
a. Separate through traffic from local traffic to the maximum extent possible.
   b. Develop and implement a City-wide traffic plan that discourages through traffic in residential areas by using traffic calming measures. Seek to implement techniques such as traffic calming measures as a preferred alternative to more traffic signals and stop signs.
   c. Implement traffic calming measures for local and collector streets instead of adding more traffic signals, giving priority to areas with high elderly and school age children populations.
   d. Where appropriate, designate roads as rural and scenic.
   e. Ensure adequate on- and off-site traffic circulation associated with commercial development.
   f. Ensure that major road repair / construction projects do not overly disrupt traffic patterns and the mobility needs of citizens and commuters.
   g. Minimize curb cuts on collector and arterial roads.
   h. Continue efforts for the completion of planned highway projects including the Broad Street Parkway and the Circumferential Highway.
   i. Continue with the planned re-alignment and improvements at the intersection of Sargents Ave., Manchester St., and Courtland St. to remove existing stopping sight deficiencies.
   j. Implement access management techniques to preserve capacity and increase safety in key highway corridors including Route 101A, Daniel Webster Highway, Route 111, Route 111A, and Route 130.
3. **OBJECTIVE: MASS TRANSIT, RAIL, AIR AND OTHER TRANSPORTATION ALTERNATIVES**

Ensure that adequate public transportation opportunities remain available, and expand them if possible.

**Recommendations:**

a. Explore the desirability and economic feasibility of expanding the City’s public transit system.
b. Encourage greater use of public transportation by making it as convenient as possible.
c. Explore the feasibility of developing transfer stations at public parking areas.
d. Promote and actively plan for passenger rail service to Boston as a way to ease traffic congestion on the F.E. Everett Turnpike.
e. Explore potential for a regional public transit system for all segments of the population.
f. Improve pedestrian amenities and pathways to enhance transit ridership, and should improve bicycle routes to encourage alternatives to motorized vehicles.
g. Decisions made concerning the re-structuring of the fixed route bus service should incorporate residential densities, employment densities, travel demands (trip attractions and productions between traffic analysis zones), automobile ownership, and strategies to increase market share as criteria used in the analysis.
h. The bus system should be made more convenient by instituting half-hour headways on fixed routes.
i. Investigate new sources to fund transit improvements and operations such as utilizing amendments to RSA 261:153, which would allow the City to collect a fee of up to $5.00 for each auto registration to fund a capital reserve fund for transportation improvements.
j. Pursue operational funding for transit through private sources including large employers and retailers who have the potential to benefit greatly from transit services. This could be achieved through the establishment of a TMA.
k. Encourage increasing residential and employment densities as in-fill in established neighborhoods to increase transit ridership, particularly in downtown areas with access to the forthcoming Broad Street Parkway.

4. **OBJECTIVE: NON-MOTORIZED AND PEDESTRIAN TRANSPORTATION**

Contribute to the quality of life by promoting alternatives to motorized transportation.

**Recommendations:**

a. Ensure that every neighborhood in the City has access to schools, community centers, parks and open space areas via sidewalks or other trails.
b. Ensure that trails and sidewalks are developed in a logical manner, allowing for priority trails and sidewalks to be developed ahead of non-priority trails.
c. Develop bike lanes and/or sidewalks along roads according to the Nashua Trails Plan and the sidewalk priority list.
d. Set aside capital improvements funds for the development, management and maintenance of trails (including snow removal).
e. Provide a mix of non-motorized, multi-use trails, as well as dedicated, single-use trails.
f. Encourage pedestrian-oriented, mixed-use neighborhoods as new subdivisions and developments are proposed.
g. Incorporate bicycle lanes and/or sidewalks into plans when roads are being resurfaced or reconstructed, or as new roads are developed.
h. Develop trails that avert pedestrian / bicyclist and automobile conflicts. Sidewalks should be developed that get people off the roads, bike lanes that allow bikers safe passage, and crosswalks that are placed on busy, dangerous intersections and roads.
i. Promote the use of bicycles as a form of transportation through the development of bike lanes, trails and storage facilities.
j. Ensure proper site planning in order to accommodate uses with a high level of pedestrian activity.
k. Identify and correct problematic areas for bicycle access.
l. The City should utilize funding earmarked for improvements to the NH 101A corridor for sidewalks and bicycle paths where they do not currently exist. The NRPC will conduct a study to identify needed improvements to pedestrian and bicycle access along NH 101A.
m. Develop a comprehensive plan to meet the overall significant need for sidewalks as cited in the *City of Nashua Pedestrian Facilities Study*, June 1997.
n. Adopt standard designs for sidewalks to be included in subdivision regulations and in the site plan review process.
o. Promote transit use through signage, attractive bus shelters and other marketing devices.

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B. Topics to be Covered in the Transportation Element

The intent of this Transportation Element is to provide an inventory of the existing road and transportation infrastructure, a history of traffic and operational characteristics of the highway network, and a vision for the future direction of the overall system. Future traffic volumes on key roads have been forecasted using the NRPC traffic model. The future forecasts include “No-Build” and “Build” scenarios for the year 2020. The “Build” scenario includes a road network with both the Circumferential Highway and the Broad Street Parkway.

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III. EXISTING CONDITIONS ANALYSIS

A Roadway System

1. Regional Context

   Growth in traffic and congestion in Nashua has been one of the major by-products of the economic expansion experienced in southern New Hampshire and in the Nashua region over the past four decades. Despite the increase in vehicle miles traveled within the last twenty years, the Turnpike widening project (including the Sagamore Bridge expansion) and the completion of the Somerset Parkway have been the only two construction projects that have significantly increased highway capacity in the City. The FE Everett Turnpike (U.S. Route 3) provides limited access highway travel to Manchester and Concord to the north, and to Massachusetts to the south. The Daniel Webster Highway/Main St/U.S. Route 3 corridor provides the only north-south alternative cross town route, and the only other north-south crossing of the Nashua River besides the FEE Everett Turnpike. Route NH 101A (Amherst Street) and Route NH 130 (Broad Street) provide regional access to the west. The Merrimack River is a major barrier for traveling east to Hudson. Access between Nashua and Hudson is provided at two points; at Routes NH 111 and NH 102 over the Taylor Falls/Veterans Bridge just east of Nashua center, and at the Sagamore Bridge in South Nashua from Daniel Webster Highway to Route NH 3A.

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2. Overview of Nashua’s Road Network

   a. F. E. Everett Turnpike: The F. E. Everett Turnpike is a major north-south arterial, and the only limited access highway for inter-regional travel in Nashua. The other major north-south arterial is the Daniel Webster Highway/Main
Street/US 3 corridor that traverses from South Nashua, through the downtown, and into Merrimack. The Nashua River flows into the Merrimack River, creating a major barrier to north-south traffic. Main Street and the F. E. Everett Turnpike provide the only north-south crossings of the Nashua River. The Broad Street Parkway will provide an additional river crossing between the Turnpike and Main Street. The FE Everett Turnpike widening project was completed in 1999. The addition of a third lane has contributed greatly in relieving peak hour traffic congestion on the Turnpike in Nashua. The widening of this highway in Massachusetts began in 2001 and is expected to be complete by 2005.

b. Daniel Webster Highway, South Nashua: The principal land use along Daniel Webster Highway in South Nashua is commercial, although residential, office, and industrial uses are also located in the corridor. The types of trips along the corridor are mixed, although the shopping and retail traffic trips prevail as indicated by substantial weekend and holiday traffic congestion. Spit Brook Road is an important minor arterial connecting Daniel Webster Highway to the F. E. Everett Turnpike and residential areas in southwest Nashua. One of the most important improvements in South Nashua is the new connection between Exit 2 from the F. E. Everett Turnpike to Hudson that now allows direct access to Route 3A via the Sagamore Bridge. This direct connection bypasses the traditional route to Hudson via Exit 1/Exit 3 to Spit Brook Road and Daniel Webster Highway to the Sagamore Bridge, thereby removing excess traffic from that section of Daniel Webster. The connection was completed at the end of 1999 as part of the Turnpike widening project.

c. The Main Street/Concord Street/U.S. Route 3 corridor: This corridor is a principal arterial that connects to Route NH 101A to Route NH 130 to the west, and to Route NH 111 to the Taylor Falls/Veterans Bridge to the east. Increases in traffic volumes on Main Street have resulted in poor levels of service at major intersections along the corridor especially during the morning and afternoon peak hours. The Hollis Street/ Main Street intersection, the Main Street/Canal Street intersection, and the Main Street/Concord Street/Amherst Street intersection represent focal points for peak hour congestion. In order for traffic to access the Merrimack River crossing to Hudson, it must pass through the downtown. Similarly, traffic traveling between north and south funnels through the local road network across the Nashua River Bridge on Main Street in the downtown (unless the turnpike alternative is used). The Broad Street Parkway will provide an alternative crossing over the Nashua River, and the Circumferential Highway northern portion will provide a new crossing over the Merrimack River. Both projects will thereby relieve the Main Street corridor of north-south travel congestion and east-west travel congestion.

d. The Route NH 101A corridor in northwest Nashua: This corridor is similar to the Daniel Webster Highway corridor in South Nashua. Commercial land uses are prevalent; however, high-density office, educational, and residential uses are also included in this corridor. Retail and commuter purposes characterize the trip types along the corridor. The NH 101A bypass was a planned road that would have paralleled the existing NH 101A from Amherst to Nashua along railroad tracks thereby providing more road capacity. The road project was replaced by a Route NH 101A capacity enhancement project that was completed in 1999. This project was designed to increase the road’s capacity through a number of improvements including: addition of turning movement lanes at key intersections; signal equipment upgrades, and signal coordination throughout the corridor. Despite the implementation of the signal upgrades and capacity enhancements, congestion in the Route NH 101A corridor will remain problematic due to new developmental growth in the corridor, numerous curb cuts, and traffic demand entering and exiting side streets which hamper signal coordination. The NHDOT has programmed 17 million dollars in yet-to-be-identified improvements along Route 101A from the FE Everett Turnpike to Route 101 in Milford. The NRPC is conducting a planning study to determine the highest priority improvements within the corridor and to enable the City to properly anticipate and plan for future transportation improvements as development proposals are reviewed.

e. Route 130 (Broad Street): Improvements to Route NH 130 (Broad Street) at the FE Everett Turnpike on and off ramps, in association with the Turnpike widening, were completed in 1999. This section of Route NH 130 (from Amherst Street to the Nashua Mall) has been plagued by congestion due to commuter traffic and traffic associated with the Nashua Mall. NH 130 (Broad Street) east of the Turnpike will be re-aligned at the railroad tracks southward to continue on as the Broad Street Parkway. The lack of an alternative north-south corridor presently requires motorists to use the FE Everett Turnpike or to travel through the downtown for access between NH 111 and NH 130.
f. NH Route 111: NH Route 111 is a state highway that runs east-west through Nashua in a one-way combination with West Hollis and Kinsley Streets. There are several congestion points along NH Route 111. NH Route 111 (East Hollis Street) is an important arterial providing access to the Taylor Falls Bridge over the Merrimack River in Hudson. The Canal Street/Bridge Street corridor runs parallel with NH 111 in East Nashua. Both corridors funnel traffic from the downtown and converge at the Taylor Falls/Veterans Bridge creating congestion during the peak hours. An at-grade railroad crossing of NH 111 (East Hollis St.) further exacerbates the traffic problems. The Circumferential Highway northern portion is expected to alleviate the traffic congestion that occurs on NH 111, Bridge Street, and in Hudson (on the opposite side of the Merrimack River). The NH 111 (Hollis Street)/Main Street intersection is another peak hour congestion point. NH 111 (West Hollis Street) becomes a one-way street at this point west of Main Street.

g. The Circumferential Highway: The concept of the Circumferential Highway originated in 1959 due to the barrier that the Merrimack River presents to east-west traffic. The major east-west routes (Route 111, Route 102, and Canal/Bridge St.) converge over the Merrimack in Hudson and East Nashua (at the Taylor Falls/Veterans Bridge and through Nashua downtown and Hudson). The closest alternative Merrimack River crossing is at the Sagamore Bridge in South Nashua. The Circumferential Highway is expected to divert a significant portion of traffic away from the congested downtown areas of Nashua and Hudson.

Construction of the Nashua-Hudson Circumferential Highway as a full-build project would create a limited access, four-lane highway. The highway would connect with the F.E. Everett Turnpike to the south at the recently completed Exit 2 interchange, and to the north at a new Exit 9 interchange just north at the Nashua-Merrimack line. The full build project was scaled back as part of an agreement between former Governor Merrill and the Environmental Protection Agency (EPA). The agreement involves the completion of the northern portion of the highway from a new FE Everett Turnpike Exit 9 in Merrimack, over the Merrimack River to Route 111 in Hudson. The northern portion will have interchanges at Daniel Webster Highway in Merrimack, Route 3A in Litchfield, and Route 102 and Route 111 in Hudson. The southern segment begins at the new FE Everett Turnpike Exit 2 and traverses easterly across the Merrimack River by way of an extended Sagamore Bridge. The southern segment now links with an interchange at Daniel Webster Highway in South Nashua and terminates at Route 3A in Hudson at an at-grade intersection. The results of traffic model runs performed by the NRPC for the partial build Circumferential Highway northern segment show significant reductions in traffic at the Taylor Falls/Veterans Bridge. These reductions are expected to have a positive impact on Nashua’s downtown by reducing traffic through Railroad Square, the Main Street corridor, the Amherst Street/Broad Street corridor, and on Kinsley and Hollis Streets.

The Circumferential Highway northern portion is a component of the State Ten-Year Transportation Program. A Supplemental Environmental Impact Statement is being prepared at the present time. The project is expected to be under construction in 2003 once the permits for construction have been issued. The project will be constructed in three phases. In Phase One, construction is planned from Route 3A in Litchfield to Route 3 in Merrimack, followed by the segment from Route 3 to the new Turnpike Exit 9. In Phase Two, construction will occur from Route 3A in Litchfield to Route 102 in Hudson. Phase Three construction will complete the partial build from Route 102 to Route 111, Hudson. Figure X - 1 shows the Circumferential Highway in Nashua and Hudson.

FIGURE X - 1
Circumferential Highway
h. **The Broad Street Parkway:** The Broad Street Parkway involves the construction of a new connection between Broad Street (Route 130) and West Hollis Street (Route 111), providing a second Nashua River bridge west of the central business district in the vicinity of the Nashua Millyard. The Broad Street Parkway will consist of a four-lane, controlled access facility. Beginning at the Broad Street/Blue Hill Ave. intersection, a widened travelway on Broad Street (two lanes in both directions) will be provided. This will extend the road easterly to a new signalized, channeled T-intersection. At this point, the new parkway will continue southerly parallel to the railroad tracks and curve towards the east and then to the south, crossing under a new bridge at Fairmount Street. Continuing in a southwesterly direction from the south bank of the Nashua River, the parkway alignment will traverse the peninsula of the Millyard, where it will curve back to the southeast. The parkway will extend across the canal and follow the curve of the existing railroad spur to connect to West Hollis Street near Pine Street. The northbound and southbound roadway sections would separate in this area, with the southbound segment generally aligning with Pine Street south of West Hollis Street. The northbound segment would curve towards the east and connect to West Hollis Street.
The traffic forecasts from the NRPC traffic model predict a significant decrease in future traffic volumes on Main Street as a result of the Broad Street Parkway. Traffic on Amherst Street between the Turnpike and Main Street would also be reduced significantly. Traffic on Broad Street east of the Turnpike is expected to increase due to vehicles accessing the new parkway; however, Broad Street will be widened to accommodate this new traffic as part of the project. The project is presently in the design stage and construction is programmed to begin in the year 2001. A map of the Broad Street Parkway route is shown in Figure X - 2.

Figure X-2 Broad Street Parkway

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3. Average Daily Traffic

Figure X - 3 shows the average daily traffic (ADT) on highways, arterials, and important collector roads in the City of Nashua under existing conditions (in vehicles per day). Each count was conducted for a one-week period. The recorded volumes show the average of a twenty-four hour period for a weekday. The traffic counts were compiled from the NRPC’s yearly traffic count program and the State of New Hampshire’s traffic count program. Recent traffic counts were done over a period of time between 1992 and 1999. Table X - 1 lists the ADT on key roads and arterials, and the percentage increase in the ADT over the past two decades.

FIGURE X - 3
AVERAGE DAILY TRAFFIC
### TABLE X - 1
**AVERAGE DAILY TRAFFIC (ADT)**

<table>
<thead>
<tr>
<th>Location</th>
<th>Year</th>
<th>Vehicles per day</th>
<th>Year</th>
<th>Vehicles per day</th>
<th>Annual Growth Rate</th>
<th>Overall Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concord St south of Manchester St</td>
<td>1983</td>
<td>10,690</td>
<td>1998</td>
<td>18,366</td>
<td>3.7 %</td>
<td>72 %</td>
</tr>
<tr>
<td>Concord St north of Thornton Ave</td>
<td>1983</td>
<td>11,713</td>
<td>1999</td>
<td>16,842</td>
<td>2.3 %</td>
<td>44 %</td>
</tr>
<tr>
<td>Daniel Webster Hwy at the Mass state line</td>
<td>1983</td>
<td>13,303</td>
<td>1997</td>
<td>24,451</td>
<td>4.4 %</td>
<td>84 %</td>
</tr>
<tr>
<td>Location</td>
<td>Year 1</td>
<td>Year 2</td>
<td>Year 3</td>
<td>Change 1</td>
<td>Change 2</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>--------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>Daniel Webster Hwy south of Sagamore Br</td>
<td>1983</td>
<td>13,348</td>
<td>1997</td>
<td>2.0 %</td>
<td>33 %</td>
<td></td>
</tr>
<tr>
<td>Daniel Webster Hwy south of South Main</td>
<td>1983</td>
<td>11,027</td>
<td>1997</td>
<td>1.8 %</td>
<td>29 %</td>
<td></td>
</tr>
<tr>
<td>East Dunstable Rd east of Lamb Rd</td>
<td>1983</td>
<td>5,925</td>
<td>1999</td>
<td>4.7 %</td>
<td>108 %</td>
<td></td>
</tr>
<tr>
<td>East Dunstable Rd south of New Searles</td>
<td>1983</td>
<td>4,822</td>
<td>1995</td>
<td>6.2 %</td>
<td>107 %</td>
<td></td>
</tr>
<tr>
<td>East Dunstable Rd west of Main Street</td>
<td>1983</td>
<td>11,027</td>
<td>1997</td>
<td>1.8 %</td>
<td>29 %</td>
<td></td>
</tr>
<tr>
<td>FEE Turnpike at the Mass state line</td>
<td>1983</td>
<td>35,701</td>
<td>1992</td>
<td>5.5 %</td>
<td>61 %</td>
<td></td>
</tr>
<tr>
<td>FEE Turnpike at Nashua Canal</td>
<td>1987</td>
<td>92,480</td>
<td>1997</td>
<td>0.8 %</td>
<td>8 %</td>
<td></td>
</tr>
<tr>
<td>FEE Turnpike north of NH 101A (Exit 7)</td>
<td>1983</td>
<td>26,898</td>
<td>1993</td>
<td>8.3 %</td>
<td>122 %</td>
<td></td>
</tr>
<tr>
<td>FEE Turnpike north of Spit Brook Rd (Exit 1)</td>
<td>1983</td>
<td>42,816</td>
<td>1993</td>
<td>3.8 %</td>
<td>45 %</td>
<td></td>
</tr>
<tr>
<td>FEE Turnpike south of East Dunstable (Exit 4)</td>
<td>1983</td>
<td>51,603</td>
<td>1993</td>
<td>3.6 %</td>
<td>43 %</td>
<td></td>
</tr>
<tr>
<td>FEE Turnpike south of NH 101A</td>
<td>1983</td>
<td>51,708</td>
<td>1993</td>
<td>4.6 %</td>
<td>57 %</td>
<td></td>
</tr>
<tr>
<td>FEE Turnpike south of NH 111</td>
<td>1983</td>
<td>50,148</td>
<td>1993</td>
<td>4.3 %</td>
<td>52 %</td>
<td></td>
</tr>
<tr>
<td>Harris Rd west of east Dunstable Rd</td>
<td>1984</td>
<td>13,764</td>
<td>1997</td>
<td>2.4 %</td>
<td>37 %</td>
<td></td>
</tr>
<tr>
<td>Kinsley Street west of Pine Street</td>
<td>1983</td>
<td>12,695</td>
<td>1998</td>
<td>0.74 %</td>
<td>12 %</td>
<td></td>
</tr>
<tr>
<td>Lake St west of Pine St</td>
<td>1984</td>
<td>8,578</td>
<td>1998</td>
<td>0.42 %</td>
<td>6 %</td>
<td></td>
</tr>
<tr>
<td>Lamb Rd west of East Dunstable Rd</td>
<td>1984</td>
<td>3,124</td>
<td>1998</td>
<td>7.1 %</td>
<td>163 %</td>
<td></td>
</tr>
<tr>
<td>Ledge St east of Twelfth Street</td>
<td>1984</td>
<td>4,803</td>
<td>1998</td>
<td>3.0 %</td>
<td>53 %</td>
<td></td>
</tr>
<tr>
<td>Lund Rd south of Raven Street</td>
<td>1984</td>
<td>5,881</td>
<td>1996</td>
<td>1.7 %</td>
<td>22 %</td>
<td></td>
</tr>
<tr>
<td>Main Street at Nashua River Bridge</td>
<td>1983</td>
<td>29,354</td>
<td>1998</td>
<td>1.9 %</td>
<td>34 %</td>
<td></td>
</tr>
<tr>
<td>Main Street at Salmon Brook</td>
<td>1983</td>
<td>18,205</td>
<td>1998</td>
<td>2.3 %</td>
<td>40 %</td>
<td></td>
</tr>
<tr>
<td>Main Street north of East Dunstable Rd</td>
<td>1984</td>
<td>27,837</td>
<td>1998</td>
<td>0.7 %</td>
<td>10 %</td>
<td></td>
</tr>
<tr>
<td>Manchester St north of Hills Ferry Rd</td>
<td>1983</td>
<td>3,077</td>
<td>1997</td>
<td>6.2 %</td>
<td>34 %</td>
<td></td>
</tr>
<tr>
<td>Northeastern Blvd south of NH 111A</td>
<td>1984</td>
<td>8,073</td>
<td>1996</td>
<td>3.4 %</td>
<td>49 %</td>
<td></td>
</tr>
<tr>
<td>Ridge Rd west of Middle Dunstable Rd</td>
<td>1985</td>
<td>1,228</td>
<td>1998</td>
<td>9.3 %</td>
<td>218 %</td>
<td></td>
</tr>
<tr>
<td>Spit Brook Rd east of FEE Turnpike</td>
<td>1984</td>
<td>21,388</td>
<td>1997</td>
<td>2.4 %</td>
<td>57 %</td>
<td></td>
</tr>
<tr>
<td>NH 101A east of Broad Street</td>
<td>1983</td>
<td>24,676</td>
<td>1997</td>
<td>2.3 %</td>
<td>37 %</td>
<td></td>
</tr>
<tr>
<td>NH 101A east of Henri Burque</td>
<td>1983</td>
<td>18,112</td>
<td>1998</td>
<td>2.0 %</td>
<td>35 %</td>
<td></td>
</tr>
<tr>
<td>NH 101A west of Capital Street</td>
<td>1983</td>
<td>22,380</td>
<td>1998</td>
<td>3.8 %</td>
<td>74 %</td>
<td></td>
</tr>
<tr>
<td>NH 101A west of FEE Turnpike</td>
<td>1983</td>
<td>42,470</td>
<td>1998</td>
<td>- 0.26 %</td>
<td>- 4 %</td>
<td></td>
</tr>
</tbody>
</table>
Somerset Parkway east of NH 101A  
1987  8,152  1998  23,991  10.3 %  194 %  
NH 111, East Hollis St west of Allds St  
1984  17,024  1997  18,311  0.56 %  8 %  
NH 111, West Hollis St west of Gendron St  
1983  17,878  1995  19,886  0.8 %  11 %  
NH 111A west of Northeastern Blvd  
1983  9,722  1998  14,879  2.8 %  53 %  
NH 130 Broad St over the FEE Turnpike  
1983  20,524  1997  26,080  1.7 %  27 %  
NH 130 Broad St west of FEE Turnpike  
1987  34,888  1997  32,701  - 0.65 %  - 6 %  
Sagamore Bridge at the Hudson Town Line  
Taylor Falls Bridge at the Hudson Town Line  
US 3 Daniel Webster north of Henri Burque  
US 3 Henri Burque west of Manchester St  
1983  14,991  1998  26,574  3.8 %  77 %  
1983  34,373  1998  40,211  1.0 %  17 %  
1984  19,085  1997  18,307  - 0.32 %  - 4 %  
1987  17,032  1998  12,639  - 2.7 %  - 26 %  

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4. Roadway Classification

a. State Aid Highway Funding Classification

The State Aid Road Classification System defined by RSA 229 - 231 determines responsibility for roadway construction, reconstruction and maintenance, as well as eligibility for state aid funds. A description of the State Aid Road System is provided in the Appendix at the end of this Element. Table X - 2 summarizes the State Aid Road Classification mileage in Nashua.

<table>
<thead>
<tr>
<th>State Aid Road Classification</th>
<th>Mileage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I- Primary State Hwys</td>
<td>33.139</td>
</tr>
<tr>
<td>Class II- Secondary State Hwys</td>
<td>15.770</td>
</tr>
<tr>
<td>Class IV- Urban</td>
<td>257.505</td>
</tr>
<tr>
<td>Class VI- non-public roads</td>
<td>3.292</td>
</tr>
<tr>
<td>Total</td>
<td>309.706</td>
</tr>
</tbody>
</table>

The New Hampshire Department of Transportation (NHDOT) also classifies roads and highways into categories according to their functions, as well as their source of funding. A description of the functional classification system characteristics of a road and highway network is included in the Appendix. Table X - 3 provides a summary of the mileage for roads in the City of Nashua based on the NHDOT assigned functional classifications.

<table>
<thead>
<tr>
<th>State Functional Classification</th>
<th>Class I Mileage</th>
<th>Class II Mileage</th>
<th>Class IV Mileage</th>
<th>Class VI Mileage</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 11 Interstate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Highways

| Category 12 Other Freeways and Expressways | 16.915 | 0.388 | 17.303 |
| Category 14 Other Principal Arterials | 11.384 | 1.756 | 0.198 | 13.338 |
| Category 16 Minor Arterials | 4.84 | 14.014 | 16.428 | 35.282 |
| Category 17 Collectors | 18.775 | | | 18.775 |
| Local Urban Roads | 221.716 | 3.292 | 225.008 |
| Total | 33.139 | 15.77 | 257.505 | 3.292 | 309.706 |

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5. Capacity Analysis (Level-of-Service Analysis for Key Intersections)

Level-of-Service analysis (LOS) is a term that characterizes the type of operating conditions occurring along a roadway or at an intersection for a given period of time, generally a one-hour peak period. It is a qualitative and quantitative measure of the effect of a number of operational factors including roadway geometrics, travel delay, freedom to maneuver, and safety. Level-of-Service analysis assigns a rank from A to F, with A being the most desirable and F being the least desirable. Level-of-Service criteria for signalized and un-signalized intersections are stated in terms of the average stopped delay per vehicle. Level-of-Service categories for signalized intersections are described in the Appendix. Table X - 4 shows the stopped delay/level-of-service per vehicle for signalized intersections, and Table X - 5 shows the stopped delay/level of service for un-signalized intersections. [2]

**TABLE X - 4**
LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS 1999

<table>
<thead>
<tr>
<th>Level-of-Service</th>
<th>Stopped Delay per Vehicle (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>≤5.0</td>
</tr>
<tr>
<td>B</td>
<td>&gt; 5.0 and ≤15.0</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 15.0 and ≤25.0</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 25.0 and ≤40.0</td>
</tr>
<tr>
<td>E</td>
<td>&gt; 40.0 and ≤60.0</td>
</tr>
<tr>
<td>F</td>
<td>&gt; 60.0</td>
</tr>
</tbody>
</table>

**TABLE X - 5**
LEVEL-OF-SERVICE CRITERIA FOR UN-SIGNALIZED INTERSECTIONS

<table>
<thead>
<tr>
<th>Level-of-Service</th>
<th>Stopped Delay per Vehicle (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>≤5.0</td>
</tr>
<tr>
<td>B</td>
<td>&gt; 5.0 and ≤10.0</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 10.0 and ≤20.0</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 20.0 and ≤30.0</td>
</tr>
<tr>
<td>E</td>
<td>&gt; 30.0 and ≤45.0</td>
</tr>
<tr>
<td>F</td>
<td>&gt; 45.0</td>
</tr>
</tbody>
</table>
Tables X - 6 and X - 7 summarize the signalized and un-signalized level-of-service at key intersections in the City of Nashua.

**TABLE X - 6**

**LEVEL-OF-SERVICE (LOS) FOR SIGNALIZED INTERSECTIONS**

<table>
<thead>
<tr>
<th>Location</th>
<th>AM Peak</th>
<th>PM Peak</th>
<th>Saturday Midday Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rte 101A/Northwest Blvd</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Rte 101A/Somerset Pkwy</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Rte 101A/Profile Circle/Charron Ave</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Rte 101A/Exit 7E/Henri Burque Hwy</td>
<td>C</td>
<td>D</td>
<td>Na</td>
</tr>
<tr>
<td>Bridge St/East Hollis St.</td>
<td>B</td>
<td>B</td>
<td>Na</td>
</tr>
<tr>
<td>*DW Hwy/Sagamore Br.</td>
<td>F</td>
<td>F</td>
<td>Na</td>
</tr>
<tr>
<td>DW Hwy/Spit Brook Rd</td>
<td>D</td>
<td>D</td>
<td>F</td>
</tr>
<tr>
<td>*Tnpk Exit 6 SB Ramp/Rte 130</td>
<td>D</td>
<td>C</td>
<td>Na</td>
</tr>
<tr>
<td>*Turnpike Exit 6 NB Ramps/Rte 130</td>
<td>Na</td>
<td>Na</td>
<td>Na</td>
</tr>
<tr>
<td>Main St./Canal St./Franklin St</td>
<td>F</td>
<td>F</td>
<td>Na</td>
</tr>
<tr>
<td>Main St./Pearl St.</td>
<td>C</td>
<td>C</td>
<td>Na</td>
</tr>
<tr>
<td>Main St./Hollis St.</td>
<td>C</td>
<td>D</td>
<td>Na</td>
</tr>
<tr>
<td>Main St./Allds St.</td>
<td>B</td>
<td>C</td>
<td>Na</td>
</tr>
<tr>
<td>Main St./Lake St.</td>
<td>C</td>
<td>C</td>
<td>Na</td>
</tr>
<tr>
<td>Spit Brook Rd./Turnpike SB Ramps</td>
<td>C</td>
<td>C</td>
<td>Na</td>
</tr>
<tr>
<td>Spit Brook Rd./Turnpike NB Ramps</td>
<td>B</td>
<td>B</td>
<td>Na</td>
</tr>
<tr>
<td>E. Dunstable Rd./Turnpike SB Ramps</td>
<td>B</td>
<td>B</td>
<td>Na</td>
</tr>
<tr>
<td>E. Dunstable Rd./Turnpike NB Ramps</td>
<td>B</td>
<td>B</td>
<td>Na</td>
</tr>
<tr>
<td>Harris Rd./E. Dunstable Rd.</td>
<td>B</td>
<td>B</td>
<td>Na</td>
</tr>
<tr>
<td>Route 101A (Amherst)/Broad St.</td>
<td>F</td>
<td>F</td>
<td>Na</td>
</tr>
<tr>
<td>Railroad Square</td>
<td>F</td>
<td>F</td>
<td>Na</td>
</tr>
<tr>
<td>Daniel Webster/Veteran’s Dr</td>
<td>Na</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Dublin Ave/Route 130</td>
<td>Na</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Rte 101A/Thornton Rd.</td>
<td>C</td>
<td>F</td>
<td>Na</td>
</tr>
<tr>
<td>Southwood Drive/Somerset Prkwy</td>
<td>C</td>
<td>C</td>
<td>Na</td>
</tr>
<tr>
<td>Henri Burque Hwy/Manchester St.</td>
<td>B</td>
<td>B</td>
<td>Na</td>
</tr>
<tr>
<td>Henri Burque Hwy/US Rte 3 (DWH)</td>
<td>B</td>
<td>B</td>
<td>Na</td>
</tr>
<tr>
<td>*Main St./E. Dunstable Rd.</td>
<td>Na</td>
<td>Na</td>
<td>Na</td>
</tr>
<tr>
<td>Northeastern Blvd/Rte 111A</td>
<td>C</td>
<td>C</td>
<td>Na</td>
</tr>
<tr>
<td>Route 111/Route 111A</td>
<td>C</td>
<td>C</td>
<td>Na</td>
</tr>
<tr>
<td>Burke Street/Allds St</td>
<td>C</td>
<td>C</td>
<td>Na</td>
</tr>
</tbody>
</table>

*Intersection was under construction at the time of analysis.
Na – not available

**TABLE X - 7**

**LEVEL-OF-SERVICE (LOS) FOR UN-SIGNALIZED INTERSECTIONS**

<table>
<thead>
<tr>
<th>Location</th>
<th>AM Peak</th>
<th>PM Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charron Ave/Pine Hill Road</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lefts and Rights from Charron Southbound</td>
<td>B</td>
<td>F</td>
</tr>
<tr>
<td>Left Turns Pine Hill to Charron Eastbound</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Hollis St/Allds Street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All moves from Allds St Northbound</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>All moves Southbound</td>
<td>D</td>
<td>F</td>
</tr>
</tbody>
</table>
6. Accident Data and Analysis

Accident statistics were obtained from the NHDOT for intersections in Nashua for the latest available three-year period: 1995 – 1997. The accidents are divided into two types: accidents involving only property damage (PD), and accidents involving personal injury (PI). Table X - 8 shows the highest-ranking 25 intersections with the most accidents (a “T” indicates a tie for that position).

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Intersection</th>
<th>Total Accidents (PD + PI)</th>
<th>Type of Accident</th>
<th>Total Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DW Highway/Spit Brook Rd.</td>
<td>31</td>
<td>67</td>
<td>93</td>
</tr>
<tr>
<td>2</td>
<td>NH 101A/Somerset Pkwy</td>
<td>24</td>
<td>56</td>
<td>83</td>
</tr>
<tr>
<td>3</td>
<td>Main St./Canal St./Franklin St.</td>
<td>23</td>
<td>46</td>
<td>69</td>
</tr>
<tr>
<td>4</td>
<td>NH 111, E. - W. Hollis/Main St.</td>
<td>15</td>
<td>47</td>
<td>67</td>
</tr>
<tr>
<td>5</td>
<td>NH 111A, Kinsley/Spring St./Main St.</td>
<td>26</td>
<td>37</td>
<td>54</td>
</tr>
<tr>
<td>6</td>
<td>DW Highway/Sagamore Br. Rd.</td>
<td>11</td>
<td>32</td>
<td>45</td>
</tr>
<tr>
<td>7</td>
<td>NH 101A/Thornton Rd./Deerwood Dr.</td>
<td>12</td>
<td>32</td>
<td>42</td>
</tr>
</tbody>
</table>

Click to return to the top of the Transportation Element
7. Summary of Existing Road Conditions

The level-of-service analysis in Table X - 6 shows that there are several intersections presently operating under forced flow conditions (LOS “F”) during the morning peak hour, afternoon peak hour, or both.

The Sagamore Bridge/Daniel Webster Highway intersection operated under forced flow (LOS F) conditions during the morning and afternoon peak hours. This intersection was under construction and recently completed serving a direct link from the Sagamore Bridge to the F.E. Everett Turnpike, which is expected to relieve congestion at both the Daniel Webster Highway/ Sagamore Bridge intersection and the Daniel Webster Highway/Spit Brook Road intersection.

Traffic conditions at the Spit Brook Road/Daniel Webster Highway intersection operate under LOS D conditions during the weekday peak hours, which are characterized by long delays. Although traffic conditions under LOS D are not optimal, they are still considered acceptable in urban areas. The traffic congestion during the Saturday
peak along the Daniel Webster Highway is focused at the Spit Brook Road/Daniel Webster Highway, which operated under forced flow conditions (LOS F). Improvements were recently made to the timing and phasing at this intersection for improved traffic flow.

There are two intersections in downtown Nashua that presently operate under forced flow conditions. The Main Street/Canal St./Franklin St. intersection and the Main St./Concord St./Amherst St. intersection both operate under LOS “F” conditions during the morning and afternoon peak hours. Nashua’s major planned highway projects are expected to improve operating conditions at these two intersections. Traffic through the downtown is expected to be relieved due to the construction of the Broad Street Parkway and the Circumferential Highway. At present, north-south traffic traveling over the Nashua River and east-west traffic traveling to and from Hudson converge on Nashua’s downtown. The Broad Street Parkway will offer a north-south alternative over the Nashua River and the Circumferential Highway will offer an east-west alternative over the Merrimack River.

The Amherst Street (NH 101A)/Broad Street intersection represents another bottleneck during the morning and afternoon peak hours. This intersection operates under forced flow conditions (LOS F) during the morning and afternoon peak hours. The construction of the Broad Street Parkway is expected to alleviate congestion at this intersection by providing an alternative to Amherst Street for access to the downtown.

The Route 101A/Thornton Road intersection presently operates under forced flow conditions (LOS “F”) during the afternoon peak hour. Operational deficiencies in the NH 101A corridor have been addressed in the NH 101A signal upgrade and coordination project, which is presently in its final phase of completion. The City has recently adjusted the signal coordination for slower speeds during the afternoon peak hour to allow for the movement of extended queues through this intersection.

Table X - 7 shows that there are three un-signalized intersections that presently operate under forced flow conditions: Charron Ave./Pine Hill Ave. (p.m. peak only), Hollis St./Allds St., and Lamb Rd./East Dunstable Rd. Left and right turns from Charron Street to Pine Hill Road experience LOS “F” conditions during the p.m. peak hour due to heavy demands on NH 101A. Movements from Allds Street to East Hollis Street experience forced flow conditions (LOS “F”) during the morning and afternoon peak hours. The intersection of East Hollis Street and Allds St. is affected by the queues that stack up from traffic congestion in Hudson. Although the traffic signal at the Bridge St./Hollis St. intersection operates under LOS B conditions, queues due to traffic congestion at the Library Street/Route 111 intersection in Hudson back up on East Hollis Street and regularly block turning movements from Allds Street to East Hollis Street during the morning and afternoon peak hours. The Circumferential Highway will provide an alternative route to the Bridge Street/East Hollis Street corridor and is expected to mitigate the forced flow conditions at the Allds Street intersection. The Lamb Rd./East Dunstable intersection presently operates under LOS “E” during the morning peak hour and LOS “F” during the afternoon peak hour.

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IV. PUBLIC TRANSPORTATION

A. Surface Transportation

1. Buses (Including CITYBUS and Inter-City Bus Service)

The Nashua Transit System (NTS) has operated fixed route public transportation service in the City of Nashua for the past twelve years under the CITYBUS banner. Previously, two other operators provided transit services in Nashua. Hudson Bus Lines Company operated general-purpose, public transportation in Nashua for over thirty years. The company operated a regional network, a city-based system, and school bus service for the City. As the region became more suburbanized and automobiles became the preferred transport mode, the transit system declined. As a
result, the bus company implemented service reductions throughout the early to mid 1970s. The company presently provides only airport limousine service.

During the late 1970’s, the NRPC issued a report entitled: The Special Purpose-Urban Rural Transit Plan (SPURT). This report concluded: “there is a definitive need for a system that would provide transportation to the elderly, handicapped and low-income residents of the region.” As a result of this plan, a new demand-responsive operator was created. The Greater Nashua Transportation Services, Inc. (GNTS) began operating specialized van service to the elderly, handicapped and other transit-dependent persons in 1979, providing service to Nashua, Hudson and Merrimack. In 1993, upon the death of the founder of GNTS, Transportation Management Services, Inc. (TMSI) was contracted to operate the transit system for the remaining GNTS contract period. In 1994, the contract was awarded to ATE Management and Service Company, Inc., which has since managed the system.

In the mid to late 1970’s, the region began to experience a degree of growth that warranted reconsideration of the potential for a fixed-route, general-purpose public transportation system. Traffic congestion and higher traffic volumes played a major role in the placement of the City in a designation for violation of air quality standards for carbon monoxide in 1978.

The NRPC was commissioned by the City of Nashua and the Town of Hollis to conduct the Nashua Area Mass Transit Study, completed in 1981. The study recommended a fixed-route system for the City composed of eight routes, with downtown Nashua serving as the hub of the system. In June of 1983, the Mayor and Board of Aldermen approved funding for a transit system at a local cost of $250,000 per year. The Nashua Transit Services, Inc., a private management firm, was selected to operate the system. The administration and planning for the system was vested in the Community Development Division. This new transit system began operating in September 1984.

a. **Description of Routes**

      CITYBUS operates six routes utilizing five buses. The routes originate from downtown and operate along major corridors in Nashua. Figure X - 4 shows the CITYBUS fixed route service in Nashua. CITYBUS management is considering a number of route modifications including: half-hour headways for Route 3; modifications to Route 5; and extended Route 6 service to include East Dunstable Road.

      In addition to the proposed route modifications, CITYBUS and NRPC staff are cooperatively pursuing increased service and service expansion into the Towns of Milford, Hollis, Merrimack, Hudson, and possibly Amherst. Such service extensions could be made possible through funding available through the Access to Jobs Reverse Commute Competitive Grant Application Program. This program provides funding to government agencies and non-profit organizations to develop transportation services that connect welfare recipients and low-income persons to employment opportunities and support services. The program is designed to encourage flexibility and coordination between transportation providers and social service agencies. While the program targets those individuals leaving the Transitional Assistance to Needy Families (TANF) program, the funding can be used to supplement existing service or to create new services to fulfill needs. Depending on the community's needs, this could be an extension of existing routes to serve previously un-served areas, an increase in the spans of service on particular routes, or even the purchase of passes for targeted clientele.

b. **System Ridership**

      CITYBUS reported that the October 1999 average number of passengers was 905 for a weekday and 470 for a Saturday. Table X - 9 shows the historic ridership trends. It is important to note that in 1992, the number of buses serving the area at one time decreased from 5 to 4. This may be reflected in the reduced number of average passengers per day.

<table>
<thead>
<tr>
<th>TABLE X - 9</th>
<th>CITYBUS RIDERSHIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>Average Passengers per day</td>
</tr>
<tr>
<td>1984</td>
<td>905</td>
</tr>
<tr>
<td>1992</td>
<td>470</td>
</tr>
<tr>
<td>1999</td>
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<tr>
<td>Year</td>
<td>Value</td>
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<tr>
<td>------</td>
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<tr>
<td>1981</td>
<td>191</td>
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<tr>
<td>1985</td>
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<td>1986</td>
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</tr>
<tr>
<td>1998</td>
<td>789</td>
</tr>
<tr>
<td>1999</td>
<td>836</td>
</tr>
<tr>
<td>2000</td>
<td>832</td>
</tr>
</tbody>
</table>

FIGURE X - 4
CITYBUS ROUTE MAP
The results of a 1996 report profile completed by NRPC staff for the City showed that 71.2 percent of the riders utilize CITYBUS because a car is not available or they do not drive. The 1996 study also included a survey of residents who do not utilize CITYBUS, which showed that 74.3 percent of respondents preferred driving.

c. Maintenance Facility

The NTS office and maintenance facility is located at 219 Ledge Street in Nashua. The building has been leased since 1987, and it has long been a goal of NTS to purchase its own facility. A purchase would be eligible for 80 percent federal funding with a 20 percent local match. At present, 50 percent reimbursement is obtained through leasing, which qualifies as an operating, rather than capital, expenditure. Until recently, such a purchase did not
appear feasible because the City’s prospects for obtaining FTA Section 3 (discretionary) capital funding to supplement its formula funding capital balance were virtually non-existent. Through a recently executed contract with NRPC, final site selection and construction of a new facility will be undertaken in 2001.

- **d. New Intermodal Downtown Transfer Center**

   The new Downtown Transfer Center located between City Hall and the Elm Street parking garage provides a central waiting area and visibility for the transit system. This facility integrates CITYBUS and inter-city transit waiting areas. This facility was recently constructed with federal Congestion Mitigation Air Quality (CMAQ) funds at a cost of approximately $420,000. Vermont Transit recently instituted a commuter run that operates service to Boston. Greyhound bus service for inter-city travel also operates from the Downtown Transfer Center.

- **e. Paratransit Operations**

   The focus of paratransit service has changed somewhat during the past several years. At present, the clear mandate, as enunciated by the Federal Government, is to provide service to the disabled population, as defined by the Americans with Disabilities Act (ADA). Non-disabled elderly persons continue to be transported via paratransit, although there have been some steps taken to encourage these riders to use the fixed-route system. Low-income persons and youth are no longer identified as target groups for this service.

   Paratransit service is substantially more costly to provide than fixed-route transit. Each new trip generates a marginal cost in excess of the revenue received, as opposed to a new trip on CITYBUS, which only provides more revenue. The demand for paratransit service is likely to increase in the future as the population ages. It will become a greater challenge for the City to continue to provide the current level of paratransit service to those who are eligible and dependent upon it. The Nashua Transit System operates eight paratransit vans, which are equipped with wheelchair lifts. Service is operated under contract to qualifying agencies and on a call-in basis to elderly and disabled persons. CITYBUS reported the Average Riders Per Hour was 3.1 as of October 2000; the Average Number of Weekday Passengers was 193; and the average number of Saturday passengers was 15.

- **f. Transportation Demand Management – Park n’Ride Lots and Ridesharing**

   Nashua has three Park ‘n Ride lots:

   1. NH 111 at West Hollis Street/Public Works Garage off of the F.E. Everett Turnpike, Exit 5,
   2. NH 101A at St. Laurent Street at the Comfort Inn/99Restaurant off of the F.E. Everett Turnpike, Exit 7, and
   3. NH 101 Bypass – North of Southwood Drive off of the F.E. Everett Turnpike, Exit 8.

   These facilities are used for carpooling and vanpooling, and will be used for future bus and passenger rail riders. The NHDOT and the NH Regional Planning Commissions are working together with employers, chambers of Commerce, and transportation management associations to encourage ridematching and implement a State-wide system. The three park n’ ride lots in Nashua are part of the State-wide system.

   In addition, a project is envisioned that would involve the construction of a 400-space park ‘n ride lot with a rail platform in Nashua in the vicinity of Exit 2 off of the F.E. Everett Turnpike, Daniel Webster Highway and Boston and Maine Railroad. This facility will be used for carpools, vanpools, and passenger rail riders.

2. **Freight Rail**

   There are two operating railroad lines in the Nashua Region. The Main Line runs along the western side of the
The Merrimack River flows from the Massachusetts State line to Concord. The Hillsborough Branch runs from downtown Nashua to Wilton and beyond to Bennington. The Hillsborough Branch is operated by the Milford-Bennington Railroad under an operating agreement with Guilford Transportation. This segment is generally in fair condition. The eastern segment of the Hillsborough Branch and the Main Line are in fair to poor condition according to the New Hampshire State Rail Plan. The major short-range recommendation for the rail system is to improve track conditions along the lines in service. This is important to ensure safety and the economic viability of those dependent upon the system. Public policy is limited in its ability to bring about these needed improvements because the lines are under private ownership.

**B. Regional and Local Airports**

1. Nashua Airport/Boire Field

Boire Field is a 396-acre, general aviation airport located in the northwest corner of Nashua. The Nashua Airport Authority holds a 50-year lease on the property. Boire Field has one runway that is 5,500 feet long and 100 feet wide. The runway is large enough to land large corporate jet aircraft. There is an operational control tower at Boire Field that is open daily.

There are 390 aircraft based at this Airport. Two hundred and fifty-three of these are tied down on ramps and pay a monthly “tie down” fee to the Airport. The remaining aircraft are stored in hangers. There are 23 corporate aircraft based at Nashua that fly to points around the country. Two of the aircraft are Gulfstreams that have the capability of flying to foreign points. In total, there are 25 area companies that have their corporate aircraft land and depart from Boire Field. This number is expected to increase as the City grows and major corporations move to the area. Total aircraft movements, including both local and itinerant, exceeded 110,000 in 1998.

The Airport owns two fuel farms that are leased to individual businesses. These operators are called fixed base operators, and disperse fuel, rent aircraft, conduct flight instruction, and offer other aircraft related services.

Nashua is classified as a General Aviation Reliever Airport for Boston. This means that corporate aircraft that would otherwise use Logan Airport can land at Nashua, thereby relieving aircraft volume at Logan.

The airport conducted an environmental impact assessment as part of a feasibility study for a future parallel runway. An economic impact study was completed in 1999. Estimates place the Airport’s annual impact to the local economy at over $20 million.

2. Manchester Airport

Manchester Airport is located approximately 17 miles from downtown Nashua, adjacent to interstates 93 and 293; Routes 101 and 3; and the F.E. Everett Turnpike. The Airport is owned by the City of Manchester, and is operated by the City of Manchester Department of Aviation.

Manchester has two runways; one is 7,000 feet long (soon to be lengthened to 9,000 feet) and 150 feet wide, and the other is 5,850 feet long (soon to be lengthened to 7,700 feet) and 150 feet wide. The FAA operates a 24-hour Air Traffic Control Tower on site.
Ten commercial airlines offer regular passenger service out of Manchester. These airlines served 1.94 million passengers in 1998. Approximately 41 percent of the passengers originated in New Hampshire, and 10 percent in Massachusetts. Manchester is also New England’s third largest cargo airport, with FedEx, UPS, and Airborne Express facilities on site. There were 135 million pounds of cargo processed there in 1998. There is also a Federal Inspections Services (FIS) facility complete with full-time US Customs and USDA services for both passengers and air cargo. It is projected that from 2.6 to 2.8 million passengers will be handled at Manchester in 1999. That number is expected to increase to approximately 3.3 million by the year 2000.

3. Logan International Airport

Logan International Airport is located on 2,400 acres in East Boston, Massachusetts. This airport is approximately 46 miles from downtown Nashua. Logan International Airport is managed by the Massachusetts Port Authority (Massport), an independent public authority that develops, promotes, and manages airports and other transportation infrastructure. The Airport’s airfield is comprised of 5 runways, 14 miles of taxiway, and 237 acres of concrete and asphalt apron. It also has a Massachusetts State Police Barracks on-site, and its own fire department. It is the seventeenth busiest airport in the United States and the twenty-sixth busiest in the world.

There are 55 scheduled and non-scheduled, 13 regional and commuter, and 16 non-US based airlines operating out of Logan. The airport serves more than 26 million passengers, handles over 800 million pounds of cargo and mail, and generates over 16,000 aviation-related jobs, stimulating the New England regional economy by approximately $5 billion annually. It is estimated that $12.8 billion in imports and $4.5 billion in exports move via Logan annually.

Since 1970, annual passenger volumes at Logan have increased by 277 percent. Total annual delays are expected to increase from an estimated 143,000 hours in 1998 to as much as 596,000 hours in 2010. Massport is proposing a one billion dollar modernization program that includes a new runway, taxiway, roadways, airfield fueling facilities, and other infrastructure improvements. Logan is expected to continue to be the largest and busiest airport in New England.

4. Pease International Tradeport

Pease International Tradeport is located at the former Pease Airforce Base in Portsmouth and Newington, New Hampshire. This airport is approximately 62 miles from downtown Nashua. It encompasses 3,000 acres and has one runway. The Pease Development Authority operates the Tradeport.

The Tradeport handles cargo, corporate, general aviation, and limited passenger service. Pan American Airlines began scheduled passenger service to the Orlando, Florida area from the Tradeport in 1999. There is also a Federal Inspections Services (FIS) facility complete with full-time US Customs services. Immigration and USDA inspection services for passenger and air cargo can be called in as needed.

The Tradeport is located a short distance from the coastal beaches of New Hampshire and Southern Maine, and numerous summer and winter recreational activities in the region. The Pease Development Authority is actively seeking to encourage international passenger charter travel, based on its runway length and proximity to the previously noted recreational and cultural amenities.
5. FAA Facility

The FAA facility is located on Northeastern Boulevard in Nashua. The staff of this important federal facility is responsible for managing the airspace (165,000 square miles) over all of the New England states, most of New York State, extreme northeastern Pennsylvania, and up to 200 miles off of the Atlantic coast. It has a Traffic Management Unit, a National Weather Service Unit, six staff offices, and seven technical operations units. Air traffic control is provided twenty-four hours per day, three hundred and sixty-five days per year. The facility employs 280 controllers and controls 11 radar sites and 25 Remote Communications Air-to-ground radio sites.

V. ALTERNATIVE TRANSPORTATION MODES

A. Existing Bike/Pedestrian Trails and Networks

Nashua Urban Trails Plan

In 1993-1994, the City prepared the Nashua Urban Trails Network and The Nashua Trails Plan, which was adopted as a component of Nashua’s Master Plan Update in 1996. The Trails Plan documents existing and proposed on- and off-street “urban trails,” which are shown on Map IV - 6 in the Conservation and Preservation Element. The goals of the Nashua Urban Trails Network are:

- The trails contribute to Nashua’s transportation network by providing alternatives to the automobile.
- The trails offer safety for the urban trail user.
- The trails provide recreational opportunities for the urban trail user.

On-street trails consist of sidewalks, bike lanes, and crosswalks. Off-street trails consist of the more typical type of trail: wooded paths, hiking trails, equestrian trails, and bike trails. The Urban Trails Alliance (UTA), a sub-committee of the Aldermanic Committee on Infrastructure, is the principal organization in the City responsible for developing urban trails. Since the adoption of the Trails Plan, the UTA has developed several off-road trails in Nashua, and has been an advocate of sidewalks, bike lanes and other on-street trails. Details and recommendations of the Trails Plan will not be restated here; however, the reader can refer to the original document. One recommendation that will be made here, however, is that the 1994 Trails Plan be revised to reflect current conditions in the City, and to describe and map the trails that have been developed over the last several years. In the Conservation and Preservation Element, Section III.B.3., Future Urban Trails and Non-Motorized Connections, identifies possible trails and connections that could be further explored through an update of the Trails Plan.

The City recently acquired land in the Southwest quadrant centered around Yudicky Farm that would be ideal for the creation of an off-road trails network. The UTA is currently developing trails within Yudicky Farm, and new trails could be created to connect to Lovewell’s Pond, the land north of Yudicky Farm, the Main Dunstable School, and trails to be developed in the Flexible Use District subdivision to the east of Buck Meadow Road. Another trail project that should be explored is a connection between Mine Falls Park and the Ayer / Pepperell Rail Trail, a Massachusetts trail which meets Nashua in the far southwest corner near the Nashua River. Due to extensive development in the southwest quadrant over the last several decades, such a trail would probably require an extensive on-road component. Nonetheless, it could serve as both a recreational trail and non-motorized transportation route,
linking those living in the southwest quadrant to employment opportunities in downtown Nashua and the Millyard.

One of the major barriers to all forms of transportation in the City is the Nashua River, which bisects the entire City from west to east. There are several locations west of the Turnpike where it may be possible to span the River with pedestrian / bicycle bridges. The first bridge (1), adjacent to the Hollis town line, would connect the northern tip of Horrigan Park to land owned by the Hollis Crossing condominium complex. The second bridge (2) would connect the City-owned Tilton Road boat ramp land to the presently undeveloped parcel west of Heidi Lane. This property was previously discussed as one suitable for a conservation easement along the River. Though these two projects may seem inherently difficult, the City may want to pursue them as part of a congestion mitigation air quality (CMAQ) grant or another program under the TEA-21 umbrella. Development of these bridges and their trail connections would require negotiations with private landowners, but that should not deter the City from proceeding since many trails in the State and elsewhere are located on private land. Since the City is approaching build-out at the turn of the century, most future trails of any length will require easements and other agreements with private landowners.

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2. Regional Bicycle Transportation Plan

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) required states to consider strategies for incorporating bicycle transportation facilities and pedestrian walkways in the transportation planning process. In response, the NRPC completed a regional bicycle plan as an element of its long-range transportation plan. The plan encouraged non-motorized travel for destination-oriented travel, as well as for trips for recreational purposes. Bicycling provides a number of advantages to individuals and to the community, although it plays a minor role in the commute to work. Bicycling helps relieve traffic congestion and air pollution and provides an opportunity for exercise. Factors such as travel distance and time, safety, weather, and lack of facilities (such as bicycle lanes and showers at work) are considered impediments to bicycle travel.

The purpose of the regional bicycle plan was to develop and implement a comprehensive bicycle network that would facilitate non-motorized travel within the region. The plan established a number of goals including:

- Establish a non-motorized transportation network by upgrading roadways to accommodate bicycles, constructing separate bicycle paths, and linking existing bicycle paths.
- Reduce the number of bicycle accidents by eliminating network deficiencies through a regular maintenance program, installing warning and information signs, and implementing a public awareness campaign on safety issues.
- Promote public awareness of bicycling by conducting an on-going public information campaign and coordinating special events to promote bicycling.

The bicycle plan identified a number of roads that are key for inter-regional travel based on the location of major activity centers and on auto use (using average daily traffic volumes). Although bicyclists may not travel the entire length of these key roads, certain segments with major activity centers provide incentives for trip attraction. The bicycle plan targeted the following road corridors for improvements to better accommodate bicycle travel:

- Daniel Webster Highway – Primarily north-south route from Massachusetts State line to Main Street.
- Main Street – Primarily north-south route through downtown Nashua. Connects Daniel Webster Highway in south Nashua to Concord St. and beyond to Daniel Webster Highway in Merrimack.
- Spit Brook Road – East-west route connecting D.W. Highway to the F.E Everett Turnpike Exit 1, continuing westward to East Dunstable Road.
- Canal Street – East-west route, which continues from 101A/Main Street eastbound to Taylor Falls/Veterans Bridge in Hudson.
- Concord Street – Primary north-south route continuing from Main Street to Daniel Webster Highway in Merrimack.
- Harris Road – East-west connection from East Dunstable Road to Northeastern Blvd., continuing southwest to Conant Road.
- Kinsley Street – Eastbound (one-way route) that parallels Route 111 from Exit 5 to Main Street.
- Allds Street – North-south route connecting Route 111 to Main Street.
- East Dunstable Road – North-south route linking Spit Brook Road to Turnpike Exit 4 continuing to Main Street.
- Manchester Street – North-south route from Concord Street to Tinker Road.

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3. Nashua Sidewalk Study

The NRPC (NRPC) completed a pedestrian facilities study for the City of Nashua in 1997. The study included an existing conditions inventory, a needs analysis, and a prioritization for repairs and the construction of new sidewalks. The purpose of the study was to assess existing pedestrian facility conditions, establish criteria for prioritizing pedestrian improvements, solicit feedback and public input, and develop a facility capital improvements program (CIP). The CIP incorporated the input from local officials, city staff, and the general public. Elements of the prioritization process included accident rates, missing links between sidewalks, the physical condition of sidewalks, and connectivity for schools and playgrounds. The study also included recommendations for the installation of other features to enhance pedestrian mobility and safety including crosswalks, pedestrian actuated traffic signals, and signs at the appropriate locations. The sidewalk needs are listed in detail in Appendices J, K, and L of the City of Nashua Pedestrian Facilities Study, June 1997. The results of the Study showed that there is a significant need for sidewalks and pedestrian facilities throughout the City of Nashua. The study cited a need for sidewalks and facilities in the downtown, in surrounding downtown neighborhoods, and along commercial areas on major routes. The prioritization of recommendations for pedestrian improvements included sections of the following Nashua Streets:

<table>
<thead>
<tr>
<th>Main Street</th>
<th>Arlington Street</th>
<th>Lock Street</th>
<th>Whitney</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst Street</td>
<td>Blue Hill Ave.</td>
<td>Lund Road</td>
<td>Somerset Parkway</td>
</tr>
<tr>
<td>West Hollis Street</td>
<td>Burke Street</td>
<td>Main Dunstable Rd.</td>
<td>Temple Street</td>
</tr>
<tr>
<td>Kinsley Street</td>
<td>Central Street</td>
<td>Manchester Street</td>
<td>Conant Street</td>
</tr>
<tr>
<td>Daniel Webster Hwy</td>
<td>Cleveland Street</td>
<td>Middle Dunstable Rd.</td>
<td>Pine Hill Rd.</td>
</tr>
<tr>
<td>Broad Street</td>
<td>Coburn Ave.</td>
<td>Ottersen Street</td>
<td>Ridge Rd.</td>
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<td>East Hollis Street</td>
<td>Court Street</td>
<td>Northeastern Blvd.</td>
<td>Spruce Street</td>
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<td>Allds Street</td>
<td>Courtland Street</td>
<td>South Main St.</td>
<td>Thornton Street</td>
</tr>
<tr>
<td>Canal Street</td>
<td>Dearborn Street</td>
<td>Sargents Ave.</td>
<td>Tinker Rd.</td>
</tr>
<tr>
<td>Concord Street</td>
<td>Dublin Ave.</td>
<td>Searles Rd.</td>
<td>Tolles Street</td>
</tr>
<tr>
<td>East Dunstable Rd.</td>
<td>Elm Street</td>
<td>Simon Street</td>
<td>Walnut Street</td>
</tr>
<tr>
<td>Henri Burque Hwy</td>
<td>Fairview</td>
<td>Spring Street</td>
<td>Water Street</td>
</tr>
<tr>
<td>Lake Street</td>
<td>Harris Rd.</td>
<td>Taylor</td>
<td>Anvil</td>
</tr>
<tr>
<td>Chestnut Street</td>
<td>Lamb Road</td>
<td>Almont Street</td>
<td>Ledge Street</td>
</tr>
</tbody>
</table>

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B. Transportation Management Associations

Transportation Management Associations (TMA’s) were first formed in the early 1980’s in response to increasing traffic congestion that developed as the movement of people and jobs to the suburbs accelerated. Local government and business leaders began founding these associations to organize and fund comprehensive programs to resolve transportation problems and mitigate traffic congestion. TMA’s take many forms, but in a broad sense a TMA may be defined as a private, non-profit group formed to facilitate private sector involvement in the transportation planning process. The Manchester Airport Area TMA provides the following definition:

“A Transportation Management Association (TMA) is a private, nonprofit organization formed to facilitate public/private partnerships that find ways to solve transportation-related problems in general, and employee commute issues in particular. TMA’s are typically independent, consensus-oriented groups of professionals interested in marshaling various resources and expertise to address identified problems that collectively affect businesses and/or their employees.”

Over 100 TMA’s currently operate in the United States, and eight of these are located in New England. While all TMA’s share a basic foundation, each develops uniquely to address the area and population it serves. Most TMA’s focus on the needs of employers and employees, but more recently TMA’s have emerged that focus on congested road corridors or address specific issues such as tourist mobility. While early TMA’s concentrated on car and vanpooling promotions and ridematching, over the years they have moved beyond this role to embrace a variety of service and advocacy activities. TMA activities depend upon the unique needs and circumstances of its geographic area, but typical functions include:

- Provide a forum for private/public consultation.
- Represent TMA members in the transportation planning process.
- Promote and coordinate actions to reduce demand on transportation facilities.
- Establish transportation services.
- Provide specialized membership services.

The NRPC completed a TMA Feasibility Study in January 1998 to explore the possibility of establishing a TMA in the NRPC region. By reducing and or redistributing vehicular trips, a TMA may contribute towards achieving federal air quality standards mandated by the 1990 federal Clean Air Act Amendments. The TMA provides the mechanism to proactively address traffic problems that have occurred as a result of a new wave of economic growth in a region. A TMA could provide the vehicle to improve traffic congestion and air quality where merchants and residents perceive traffic to be producing a negative economic and human impact.

Since September 1998, the NRPC has been investigating the desire and support for a TMA among employers in the Central Nashua area before defining any geographic boundaries. Further study of a TMA in the Nashua region will involve:

- Exploration of the potential of a TMA with the Nashua Chamber of Commerce and other stakeholders, such as the South Nashua Merchants Group.
- Consideration of the area of the TMA which might be defined more by the extent of the Chamber of Commerce membership.
- The issues that the TMA will address will also define the area of the TMA.
VI. OTHER TRANSPORTATION ISSUES

A. Air Quality

The City of Nashua is designated as an area in violation of federal standards for air quality for carbon monoxide (CO). In addition, the City and the surrounding region are in violation of federal standards for ozone. Such “non-attainment areas” (areas designated as not attaining ambient air quality standards) can be classified as Marginal, Moderate, Serious, or Severe. In the Nashua region, the communities of Wilton, Milford, Mont Vernon, Amherst, Merrimack, Hollis Litchfield, Hudson, Nashua, and Pelham are part of a larger southeast New Hampshire non-attainment area categorized as “Serious” for ozone. The Clean Air Act Amendment (CAAA) mandated that that a designated serious area must achieve a 24 percent reduction by 1999 in order to achieve attainment; however, it became apparent that most of the ozone in New England is transported from industrial areas to the south and west. As a result of consideration of the transport issue, the designated serious areas in New Hampshire have until the year 2003 to meet the standards.

Volatile organic compounds (VOC) and nitrogen oxide (NOx) are the two pollutants recognized as responsible for the creation of ozone. The State of New Hampshire developed an emissions budget to reduce emissions from stationary and mobile sources to achieve attainment by the deadline. The emissions output (carbon monoxide and ozone), resulting from new highway and transportation projects listed in the Nashua region’s Transportation Improvement Program (TIP) must conform to the budget’s attainment goals in order to be in compliance with federal mandates. The air quality conformity for the Nashua region is described in the Long Range Regional Transportation Plan and TIP, which are endorsed by the NRPC for submission to state and federal agencies.

B. The Land Use and Transportation Connection

The trends in commuting and transportation that have emerged for the Nashua region reflect the transportation trends in evidence in the rest of the country. The numbers of cars on the road and the vehicle miles traveled have increased at a greater rate than the general population. The cumulative impacts of this increased automobile dependence include: traffic congestion, air pollution, noise pollution, and higher taxes and tolls to pay for new highway projects. Social and aesthetic impacts include: less cohesive neighborhoods, lost open space, and a preponderance of strip mall commercial development. Nashua has a viable transit system that provides an alternative to auto use. However, the Nashua Transit System remains underutilized by daily commuters.

Transit users switch modes by walking from their homes to bus stops, and vice-versa; therefore, the success of a transit system depends in part on the quality of pedestrian facilities and the layout of the patterns of development. Site design guidelines for developments that include provisions for pedestrian circulation can effectively enhance the ridership of a bus system. Elements of site design for pedestrian-oriented development and transit-oriented development should include the following:

- Provide convenient paths and connections linking residential and business development with popular destinations, such as shopping and employment centers, transit stops, schools, and parks. Within individual developments, pathways should directly link buildings, parking areas, recreation areas, convenience stores, and other services.

- Improve the pedestrian environment by installing adequate lighting, providing adequate space for pedestrian walkways and sidewalks, and protecting pedestrian access and walkways from traffic.

- Allow mixed-use development so that daily activities are integrated rather than separated. Activities that are separated require vehicle trips between zones. Mixed-use development can be successful in urban and
suburban locations.

- Increase residential density and employment density to support transit. Higher land use densities offer benefits to improved transit services. In addition, providing new types of housing in established neighborhoods can help address the needs of smaller households, which are a growing percentage of all households. Higher residential densities allow transit to be offered at more locations throughout a city. The cost per rider of operating transit is reduced when ridership increases. Studies show that residential densities of at least seven dwelling units per acre are necessary to generate significant transit ridership in urbanized areas, and transit demand triples in areas of 30 dwelling units per acres. Employment densities of 50 employees per gross acre are needed to support transit use. An average of 15 dwelling units per acre can support high frequency bus service. Examples of residential types and the development densities associated with these types (in dwelling units per acre) are as follows:

<table>
<thead>
<tr>
<th>Residential Type</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subdivision Homes</td>
<td>1 to 8 units per acre</td>
</tr>
<tr>
<td>Cluster Homes</td>
<td>3 to 8 units per acre</td>
</tr>
<tr>
<td>Zero Lot Line Homes</td>
<td>5 to 10 units per acre</td>
</tr>
<tr>
<td>Town Houses</td>
<td>8 to 12 units per acre</td>
</tr>
<tr>
<td>Multi-Flex Homes</td>
<td>10 to 20 units per acre</td>
</tr>
<tr>
<td>Garden Style Apartments</td>
<td>30 to 60 units per acre</td>
</tr>
<tr>
<td>Mid-Rise Apartments</td>
<td>30 to 60 units per acre</td>
</tr>
<tr>
<td>High-Rise Apartments</td>
<td>60 to 300 units per acre</td>
</tr>
</tbody>
</table>

Residential densities should be increased in established neighborhoods rather than on the urban fringe in order to have a positive impact on transit ridership. The use of traditional multi-residential housing as in-fill development can be out of character with existing neighborhoods and is often met with resistance from residents. Residential development that increases density should blend in with established neighborhoods. The inclusion of amenities such as parks and playgrounds, plus improvements in poorly maintained or non-conforming uses, will help to increase the acceptance of higher residential development in established neighborhoods.

The Broad Street Parkway will provide improved access to Nashua’s downtown, as well as new opportunities for increased residential and employment densities in close proximity to the downtown. The Parkway will offer new opportunities to utilize the Millyard area and improved bicycle and pedestrian amenities will be constructed along the parkway. The bicycle and pedestrian path proposed to be constructed along the Parkway will tie-in to the bicycle and pedestrian pathway along the abandoned railroad right-of-way that is now under construction from the downtown to Mine Falls Park. The City should identify potential sites for higher residential and employment density development in the vicinity of the Broad Street Parkway.

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C. Access Management

Access Management is the process of managing the placement of driveways on roadways, especially on those roadways classified as arterials. Arterial highways are similar to limited access freeways in that their primary function is to move people and goods over long distances quickly and efficiently; however, arterials do not have the benefit of strict access controls to adjacent parcels that limited access highways do. The speed and volume of traffic on an arterial is greatly reduced by vehicles entering and exiting side streets and driveways. In general, access management policies involve the regulation of the number of driveways, the design and placement of driveways, and the design of any roadway improvements needed to accommodate driveway traffic. The primary goal of implementing access management policies is to prevent the loss of roadway capacity due to development along arterials by reducing turning
movements that conflict with through traffic.

The following general policies can be implemented through site plan review, driveway ordinances, and/or zoning regulations, to achieve the access management goals:

- Reduce the number of curb cuts along arterials and encourage the use of common driveways for commercial developments.

- Encourage the development of service roads parallel to arterials that allow for access to adjacent commercial developments.

- Set minimum allowable distances between curb cuts along arterials.

- Require developers to fund road improvements that reduce the impedance of through traffic such as right turn lanes, left turn pocket lanes, and bypass lanes for left turning vehicles.

- Set buildings, parking, and signs back from the road sufficiently to allow for a future parallel access road and to reduce roadside distractions and obstacles.

- Place parking behind or beside buildings and screen parking when possible to make the building the focal point of the destination. Use green spaces to articulate the differences between driveways, parking, and pedestrian areas.

- Encourage easements between parcels for the interconnection of non-residential sites to allow employees and customers to move from site-to-site without repeatedly entering and exiting the arterial.

- Allow for pedestrian access between commercial developments. Crossing points for pedestrians should be across driveways rather than through parking areas.

- Driveways and tapers should be long enough to permit deceleration of entering vehicles. Vehicular and pedestrian traffic should be separated as much as possible. Foot traffic should be permitted to access buildings without crossing driveways or excessive parking areas.

- Non-residential driveway entrances should be designed to prevent vehicles on the arterial from backing up while waiting to access the site. By providing adequate depth or driveway length at the curb cut access, vehicles are allowed sufficient maneuvering space on-site to move away from the entrance and allow other vehicles to efficiently and safely enter or exit the site.

The NH 101A and the Daniel Webster Highway corridors experience congestion and a loss of capacity due to the placement of multiple drives for commercial access. NH 130, NH 111, and NH 111A are representative of other corridors in Nashua where access management could be used to enhance capacity and preserve aesthetics.

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D. Traffic System Management/Traffic Signal Coordination

There are 78 signalized intersections in the City of Nashua. The City also controls two signalized intersections in Merrimack on Route 101A that are linked through coordination with signalized intersections in Nashua. Modernization of the signal equipment and the controller systems is an ongoing process. The City coordinates signals
at intersections that are in close proximity to efficiently manage peak traffic volumes. The coordination is achieved through either the synchronization of controller clocks or through a hard wire interconnection of controllers. The Management Information System for Transportation (MIST) is used by the City for the maximum coordination of traffic signals. This system is responsive to the volumes of traffic detected on magnetic loops on the approaches to intersections (the volumes affect the length of green times). The MIST system is monitored and managed at a central location at the Nashua Public Works Division on Riverside Street, where changes in timing and phasing can be made, and software or hardware malfunctions can quickly be addressed.

The MIST system is utilized in three main transportation corridors of Nashua: NH 101A; Main Street; and the Daniel Webster Highway (South Nashua). The NHDOT updated the signal system within the NH 101A corridor in 1999. The NH 101A signal system west of the F.E. Everett Turnpike included in the NHDOT’s upgrade is now included in Nashua’s MIST system. The City is presently adding wire connections to the Henri Burque/Route 101A intersection east of the Turnpike. This intersection will also be added to the Route 101A coordination scheme under the MIST system once the connections are complete.

The Main Street corridor in downtown Nashua is presently time-based coordinated, whereby the controllers at the intersections are not physically interconnected, but are instead coordinated through the synchronization of the internal clocks. An application for federal funds under the Congestion Mitigation and Air Quality (CMAQ) program has been approved and funded to upgrade the signal equipment at 18 downtown intersections. The downtown signals will be under control of the MIST system when the program is complete. With the completion of the Exit 2, the Daniel Webster Highway corridor in South Nashua is now completely under the MIST system from the Graham Drive/Daniel Webster Hwy. intersection to the Pheasant Lane Mall.

Other corridors identified by the Nashua Public Works Division for future signal coordination using the MIST system include:

- Canal Street/Bridge Street corridor – intersections include Lowell St./Canal St., Canal St./Chandler St., Bridge St./Amory St., and East Hollis St./Bridge St.
- Route 111 (West Hollis Street) corridor – intersections include 12th St./Markar St./Route 111, Simon St./Route 111, Route 111/Route 111A, and Riverside St./Route 111.

Other stand-alone intersections (not in a signal-coordinated corridor) identified for inclusion in the MIST system, for the purpose of remote programming and monitoring, include: Harbor St./Burke St./Allds St., Main St./East Dunstable St., Kinsley St. at St. Joseph’s Hospital, and Lake St./Pine St.

E. Traffic Calming

When traffic congestion reaches a saturation point, usually during the peak hour, motorists often seek alternative routes through neighborhoods. Traffic calming techniques can be utilized to slow down and control traffic on streets where it is necessary for traffic and pedestrians to co-exist. The goal of traffic calming is to protect the safety and congeniality of these neighborhoods, without excluding traffic. Traffic calming techniques include:

- Narrow down streets – Wide streets often encourage motorists to drive faster. Extending curbs, eliminating multiple lanes, and adding bicycle lanes can help reduce speeds.
- Break up straight-aways – Straight-aways on roads encourage speeding. Reductions in speeds can be obtained by making physical alterations such as speed humps, speed tables, rumble strips, traffic circles, and chicanes that require motorists to deviate from a straight line.
• Re-align and re-design intersections to be more pedestrian friendly – “Neck downs” can be added to decrease the length of road required by pedestrians to cross and signal times can be changed to add more walk time.

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VII. FUTURE CONDITIONS ANALYSIS

A. Traffic Model Projections

NRPC developed a MINUTP traffic model for forecasting traffic in the Nashua region. A No-Build highway network and Build highway network were developed for the year 2020. The No-Build network includes highway and transportation projects that are completed, already underway, or for which funding has been approved. The Build network includes planned projects that have not received environmental permits or have not been approved for funding. Table X - 10 shows the projects included in the No-Build and Build 2020 road networks used in this model:

<table>
<thead>
<tr>
<th>Scenario</th>
<th>FEEverett Turnpike Widening and ramp improvements</th>
<th>Daniel Webster Mitigation Project</th>
<th>Main St. Hollis St Signal Coordination</th>
<th>Sagamore Bridge Widening and Route 2 Ramps</th>
<th>Broad St Parkway</th>
<th>Circumferential Highway</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020 No-Build</td>
<td>Included</td>
<td>Not Included</td>
<td>Included</td>
<td>Included</td>
<td>Not Included</td>
<td>Not Included</td>
</tr>
<tr>
<td>2020 Build</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
</tr>
</tbody>
</table>

Future traffic forecasts are based on anticipated future land use patterns. Projected number of housing units, and employment and school enrollment statistics are used to generate trip productions and attractions within the model. The projected growth in land use was made in consultation with local planners from the Nashua region and through a review of present and proposed zoning, physical constraints, and assumptions made regarding future area-wide growth rates.

The results of the future NRPC model runs for the year 2020 No-Build and Build are shown in Table X - 11 for highways and key roads in Nashua.

<table>
<thead>
<tr>
<th>Location</th>
<th>Latest Available Traffic Count</th>
<th>Year 2020 No-Build</th>
<th>Annual Percent Change</th>
<th>Overall Percent Change</th>
<th>Year 2020 Build</th>
<th>Annual Percent Change</th>
<th>Overall Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concord St south of Manchester St</td>
<td>(1988) 18,366</td>
<td>26,343</td>
<td>1.82 %</td>
<td>43.43 %</td>
<td>17,064</td>
<td>- 0.37 %</td>
<td>- 7.09 %</td>
</tr>
<tr>
<td>Concord St north of Thornton Ave</td>
<td>(1999) 16,842</td>
<td>22,171</td>
<td>1.38 %</td>
<td>31.64 %</td>
<td>15,321</td>
<td>- 0.48 %</td>
<td>-9.03 %</td>
</tr>
<tr>
<td>Daniel Webster Hwy at the Mass state line</td>
<td>(1997) 24,451</td>
<td>39,319</td>
<td>2.40 %</td>
<td>60.81 %</td>
<td>37,202</td>
<td>2.21 %</td>
<td>52.15 %</td>
</tr>
<tr>
<td>Location</td>
<td>Year</td>
<td>Value 1</td>
<td>Value 2</td>
<td>Change 1</td>
<td>Value 3</td>
<td>Change 2</td>
<td>Change 3</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>------</td>
<td>---------</td>
<td>---------</td>
<td>----------</td>
<td>---------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Daniel Webster Hwy south of Sagamore Br</td>
<td>1997</td>
<td>17,777</td>
<td>13,832</td>
<td>-1.25%</td>
<td>11,663</td>
<td>-2.09%</td>
<td>-34.39%</td>
</tr>
<tr>
<td>East Dunstable Rd east of Lamb Rd</td>
<td>1999</td>
<td>12,350</td>
<td>32,500</td>
<td>7.76%</td>
<td>24,600</td>
<td>4.72%</td>
<td>99.19%</td>
</tr>
<tr>
<td>East Dunstable Rd south of New Searles</td>
<td>1995</td>
<td>9,966</td>
<td>18,858</td>
<td>3.24%</td>
<td>19,374</td>
<td>3.38%</td>
<td>94.40%</td>
</tr>
<tr>
<td>East Dunstable Rd west of Main Street</td>
<td>1997</td>
<td>14,235</td>
<td>17,670</td>
<td>1.09%</td>
<td>15,948</td>
<td>0.57%</td>
<td>12.03%</td>
</tr>
<tr>
<td>FEE Turnpike at the Mass state line</td>
<td>1992</td>
<td>58,110</td>
<td>88,637</td>
<td>2.13%</td>
<td>71,827</td>
<td>1.07%</td>
<td>23.61%</td>
</tr>
<tr>
<td>FEE Turnpike at Nashua Canal</td>
<td>1997</td>
<td>99,779</td>
<td>117,310</td>
<td>0.81%</td>
<td>85,643</td>
<td>-0.76%</td>
<td>-14.17%</td>
</tr>
<tr>
<td>FEE Turnpike north of NH 101A (Exit 7)</td>
<td>1993</td>
<td>59,717</td>
<td>78,141</td>
<td>1.35%</td>
<td>61,111</td>
<td>0.12%</td>
<td>2.23%</td>
</tr>
<tr>
<td>FEE Turnpike north of Spit Brook (Exit 1)</td>
<td>1993</td>
<td>62,226</td>
<td>63,103</td>
<td>0.07%</td>
<td>47,973</td>
<td>-1.23%</td>
<td>-22.91%</td>
</tr>
<tr>
<td>F.E.E. Tpke south of East Dunstable (Exit 4)</td>
<td>1993</td>
<td>73,781</td>
<td>99,777</td>
<td>1.52%</td>
<td>76,975</td>
<td>2.12%</td>
<td>4.33%</td>
</tr>
<tr>
<td>FEE Turnpike south of NH 101A</td>
<td>1993</td>
<td>81,192</td>
<td>105,059</td>
<td>1.30%</td>
<td>83,642</td>
<td>0.15%</td>
<td>3.02%</td>
</tr>
<tr>
<td>FEE Turnpike south of NH 111</td>
<td>1993</td>
<td>76,414</td>
<td>84,857</td>
<td>0.53%</td>
<td>72,107</td>
<td>-0.30%</td>
<td>-5.64%</td>
</tr>
<tr>
<td>Harris Rd west of East Dunstable Rd</td>
<td>1997</td>
<td>18,848</td>
<td>23,033</td>
<td>1.00%</td>
<td>19,055</td>
<td>0.05%</td>
<td>1.10%</td>
</tr>
<tr>
<td>Kinsley Street west of Pine Street</td>
<td>1998</td>
<td>14,192</td>
<td>17,481</td>
<td>1.05%</td>
<td>12,633</td>
<td>-0.58%</td>
<td>-10.99%</td>
</tr>
<tr>
<td>Lake St west of Pine St</td>
<td>1998</td>
<td>9,097</td>
<td>9,580</td>
<td>0.26%</td>
<td>8,894</td>
<td>-0.11%</td>
<td>-2.23%</td>
</tr>
<tr>
<td>Lamb Rd west of East Dunstable Rd</td>
<td>1988</td>
<td>8,247</td>
<td>20,555</td>
<td>4.67%</td>
<td>18,871</td>
<td>4.22%</td>
<td>128.82%</td>
</tr>
<tr>
<td>Ledge St east of Twelfth Street</td>
<td>1998</td>
<td>7,359</td>
<td>3,151</td>
<td>-4.15%</td>
<td>2,753</td>
<td>-4.79%</td>
<td>-62.59%</td>
</tr>
<tr>
<td>Lund Rd south of Raven Street</td>
<td>1996</td>
<td>7,188</td>
<td>11,507</td>
<td>2.38%</td>
<td>10,167</td>
<td>1.75%</td>
<td>41.44%</td>
</tr>
<tr>
<td>Main Street at Nashua River Bridge</td>
<td>1998</td>
<td>39,299</td>
<td>47,244</td>
<td>0.95%</td>
<td>29,487</td>
<td>-1.42%</td>
<td>-24.97%</td>
</tr>
<tr>
<td>Main Street at Salmon Brook</td>
<td>1998</td>
<td>25,520</td>
<td>33,215</td>
<td>1.33%</td>
<td>27,674</td>
<td>0.40%</td>
<td>8.44%</td>
</tr>
<tr>
<td>Main Street north of East Dunstable Rd</td>
<td>1998</td>
<td>30,630</td>
<td>35,054</td>
<td>0.67%</td>
<td>29,798</td>
<td>-0.14%</td>
<td>-2.72%</td>
</tr>
<tr>
<td>Manchester St north of Hills Ferry Rd</td>
<td>1997</td>
<td>7,187</td>
<td>9,035</td>
<td>1.18%</td>
<td>6,571</td>
<td>-0.44%</td>
<td>-8.57%</td>
</tr>
<tr>
<td>Northeastern Blvd south of NH 111A</td>
<td>1996</td>
<td>12,067</td>
<td>15,309</td>
<td>1.20%</td>
<td>11,635</td>
<td>-0.18%</td>
<td>-3.58%</td>
</tr>
<tr>
<td>Ridge Rd west of Middle Dunstable Rd</td>
<td>1998</td>
<td>3,906</td>
<td>5,369</td>
<td>1.60%</td>
<td>3,331</td>
<td>-0.79%</td>
<td>-14.72%</td>
</tr>
<tr>
<td>Spit Brook Rd east of FEE Turnpike</td>
<td>1997</td>
<td>33,658</td>
<td>45,904</td>
<td>1.56%</td>
<td>41,088</td>
<td>1.00%</td>
<td>22.07%</td>
</tr>
<tr>
<td>NH 101A east of Broad Street</td>
<td>1997</td>
<td>33,886</td>
<td>31,826</td>
<td>-0.31%</td>
<td>22,817</td>
<td>-1.96%</td>
<td>-32.67%</td>
</tr>
</tbody>
</table>
In addition to the No-Build and Build forecasts, the City of Nashua Planning Department has proposed three road scenarios to be analyzed using NRPC’s traffic model. The proposed connector roads were individually added to the baseline model network, and then the model was run to determine the forecasts for each scenario. These scenarios were chosen to identify solutions to help overcome barriers to effective circulation, and also to take into account the delayed response needs of the Nashua Fire Department. Map VI – 1: Fire Districts and Response Map in the Community Facilities Element shows the fire station locations in the City and areas of delayed response. The two scenarios analyzed are described as follows:

1. A connection between NH 130 and NH 111 over the Nashua River west of the F.E.Everett Turnpike (through the site of the new north Nashua High School).
2. A connection over the FE Everett between Lund Road and Northeastern Blvd.

The results of these traffic model studies are explored in more detail below.

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B. Results of Traffic Model Projections

1. Connector between NH 130 and NH 111 over the Nashua River west of the F.E.Everett Turnpike (through the Brox property).

Table X - 12 summarizes the model output of existing average daily traffic (ADT) at key locations generated under baseline conditions without the proposed connector road between NH 130 and NH 111; and the results of the model run with the proposed connector road. The traffic model results for this proposed connector road between NH 130 and NH 111 show that it would carry 20,400 vpd. This scenario would impact traffic patterns at the regional level,
as well as on the local roadway network. A crossing over the Nashua River west of the Turnpike would be utilized by residents of towns west of Nashua, including Brookline and Hollis, as well as by residents of Nashua. The model shows an increase of 6,100 vpd on NH 130 at the Nashua-Hollis town line, and a decrease of 11,000 vpd on NH 111 between the new connector and the Nashua-Hollis town line. However, the average daily traffic remains about the same on NH 111 just west of the Turnpike (30,900 vpd). A Nashua River crossing west of the Turnpike in Nashua provides an alternative to the Route 111 crossing near Depot Road in Hollis. The results of the model run show decreases along NH 130 between the proposed crossing and the Turnpike. However, traffic would increase by 6,100 vehicles per day (vpd) on NH 130 west of the proposed crossing and Dublin Road would also see an increase of 1,100 vpd based on the model.

Increases in traffic due to the crossing occur on NH 111A between the proposed crossing and the Turnpike. The results of the model run are summarized in Table X - 12:

<table>
<thead>
<tr>
<th>Location</th>
<th>Base Model Outputs: Existing Volumes (Vehicles per Day)</th>
<th>Build Model Outputs: with NH 111-NH 130 Connector (Vehicles per Day)</th>
<th>Change in Vehicles per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Connector Rd</td>
<td>---</td>
<td>20,400</td>
<td>---</td>
</tr>
<tr>
<td>Broad St. (130) west of Bridge</td>
<td>17,200</td>
<td>23,300</td>
<td>6,100</td>
</tr>
<tr>
<td>Broad St.(130) east of Bridge</td>
<td>17,700</td>
<td>14,300</td>
<td>-3,500</td>
</tr>
<tr>
<td>W. Hollis St. (111)west of Bridge</td>
<td>30,400</td>
<td>19,400</td>
<td>-11,000</td>
</tr>
<tr>
<td>W. Hollis St. (111)east of Bridge</td>
<td>30,400</td>
<td>30,900</td>
<td>500</td>
</tr>
<tr>
<td>Coburn Ave. north of Broad St.</td>
<td>500</td>
<td>800</td>
<td>300</td>
</tr>
<tr>
<td>Dublin Ave. north of Broad St.</td>
<td>2,700</td>
<td>3,800</td>
<td>1,100</td>
</tr>
</tbody>
</table>

Based on the above information, this scenario would greatly relieve traffic congestion in the area along West Hollis Street east of the proposed bridge. Further analysis of the connector’s effects on peak hour traffic operations at several intersections on the local road network is necessary to determine the impacts of this scenario. In particular, the intersections of NH 111/NH111 and NH 111A and Northeastern Blvd. should be included in future analysis.

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1. Connector over the F.E.Everett Turnpike between Lund Road and Northeastern Blvd.

Table X – 13 summarizes the model output of existing average daily traffic (ADT) under baseline conditions without the proposed connector road between Lund Road and Northeastern Boulevard; and the results of the model run with the proposed connector road. The traffic model forecasts that this proposed connector road would carry 10,000 vpd. This scenario would require that a bridge be constructed over the Turnpike between Lund Road and Northeastern Blvd. Based on the model run traffic would decrease along Harris Road, East Dunstable Road, and Rte. 111 A. Traffic would increase in the area along Lund Road also impacting Anvil Drive, Almont Street and Nowell Street. The results of the model run are summarized in Table X - 13:
<table>
<thead>
<tr>
<th>Location</th>
<th>Outputs: Existing Volumes (Vehicles per Day)</th>
<th>Outputs: with Connector (Vehicles per Day)</th>
<th>Change in Vehicles per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Connector Rd</td>
<td>---</td>
<td>10,000</td>
<td>---</td>
</tr>
<tr>
<td>Lund Rd. west of Bridge</td>
<td>4,400</td>
<td>5,600</td>
<td>1,200</td>
</tr>
<tr>
<td>Lund Rd. east of Bridge</td>
<td>4,400</td>
<td>11,300</td>
<td>7,000</td>
</tr>
<tr>
<td>Northeastern Blvd. west of Bridge</td>
<td>11,800</td>
<td>14,900</td>
<td>3,200</td>
</tr>
<tr>
<td>Northeastern Blvd. east of Bridge</td>
<td>11,800</td>
<td>12,200</td>
<td>400</td>
</tr>
<tr>
<td>Almont St. north of Lund</td>
<td>4,400</td>
<td>6,800</td>
<td>2,500</td>
</tr>
<tr>
<td>Nowell St. north of Almont</td>
<td>3,400</td>
<td>5,800</td>
<td>2,500</td>
</tr>
<tr>
<td>E. Dunstable Rd. north of Lund</td>
<td>16,400</td>
<td>15,700</td>
<td>-700</td>
</tr>
<tr>
<td>Lake St. west of Fairview</td>
<td>1,100</td>
<td>1,300</td>
<td>200</td>
</tr>
</tbody>
</table>

The results of the model run show trips would be diverted from the downtown via Pine Street through neighborhoods in the Lund Road area for access to and from the proposed Turnpike crossing. Based on the traffic model data provided, it appears that a connector road between Lund Road and Northeastern Blvd. would not be beneficial to the community. However, this scenario requires more detailed peak hour analysis that should include, at a minimum, the following intersections:

- Almont St/Lund Road
- Nowell St/Almont Street
- Lund Road/East Dunstable Rd.
- Lund Rd./Main Dunstable/Lake Street
- Lund Road/Anvil Drive

C. Major Ongoing and Planned Transportation Projects

1. Route 101A Improvements

The original State of New Hampshire Ten-Year Highway Program in 1986 included a limited access Route 101A Bypass from Route 101 in Milford to the F.E. Everett Turnpike in Nashua. The need for the construction of this bypass has been reduced due to the construction of the Camp Sargent Road Bypass and the Somerset Parkway in Nashua, which have diverted traffic away from NH 101A. The recommended program for the Route 101A corridor has been modified to an upgrade of the existing highway. The upgrade consists of widening the highway to three lanes in each direction from Boston Post Road in Merrimack to a point just beyond Celina Ave. in Nashua. The improvements also include the upgrade of signal hardware and coordination of the timing and phasing for 21 intersections in the corridor, as recommended in a 1995 report by the engineering consultant Vanasse Hangen Brustlin, Inc. These upgrades were phased in over time and completed in November 1999.

2. Passenger Rail Service to Boston

The feasibility of extending the existing Boston-to-Lowell passenger rail line to Nashua has been investigated by the NRPC and other stakeholders for quite some time. In 1991, special State legislation was passed that established
a working group charged with investigating this project.

Several key benefits have been identified in conjunction with this potential service extension, including:

- Improved mobility for the citizens of the Nashua Region who travel to Boston on a regular or periodic basis.
- Improved competitiveness of freight rail service, which could encourage industrial development along the New Hampshire Main Line and feeder lines.
- Numerous environmental benefits including decreased vehicular congestion along major arterials, fuel savings, and a reduction in air pollutants.

In 1998, the Nashua-Lowell Commuter Rail Extension was identified in the TEA-21 Legislation as a potential New Starts project. During the same year, the Commonwealth of Massachusetts announced plans to widen Route 3 from Nashua to Burlington, MA. These two factors sparked renewed interest in the commuter rail project.

In 1999, the NRPC completed a draft Major Investment Study, with technical assistance from Vanasse Hangen Brustlin. The City of Nashua and the NHDOT provided funding assistance to this effort and oversaw its development. The purpose of this effort was to evaluate various alternatives associated with facilitating the movement of commuters into the Boston area during peak hours. A number of alternatives were evaluated, and the extension of passenger rail service from Lowell to Nashua was deemed to be the alternative that would have the greatest positive impact.

In 1999, one million dollars was guaranteed to the Nashua-Lowell project through the federal appropriations process for FY 2000. These funds would enable the project to move forward to the preliminary engineering phase.

a. Market Analysis

An analysis of the rider market potential was originally conducted 1988 and was replicated in 1998, which provided a basis for comparing trends. Both surveys were based upon existing use patterns at the rail stations now used by New Hampshire residents in Lowell and North Billerica. The results revealed an 80 percent increase in the number of riders from New Hampshire on this line during this time period, and 1337 percent and 154 percent increases from riders residing in Nashua and Merrimack, respectively. This is compared to a 15 percent growth rate for riders who reside in Massachusetts during this same time. The results also estimated that if service were to resume to a Nashua train station, there would be the market for approximately 950 riders each day.

b. Operational Aspects

The results also indicated that 63 percent of the ridership occurs on the four runs from 6:20 a.m. to 7:50 a.m. This indicates that passenger rail extension to Nashua can be accomplished by providing as few as four daily southbound trips during commuter hours.

c. Station Location

In order to link various transportation modes, the rail station should have a solid relationship with the highway infrastructure. Analysis of station location alternatives has also been based upon surveys of potential user preferences and evaluations based upon site visits. A survey of existing riders at the Massachusetts stations who would prefer to board the train in Nashua indicated that 52 percent consider a station off the Daniel Webster Highway near the Sagamore Bridge to be the most convenient location. An additional 26 percent indicated preference for a downtown Nashua station.

A station located near the Sagamore Bridge would tie into the plans that extended Exit 2 of the F. E. Everett Turnpike to Hudson. A station site has been identified in this general vicinity at a location behind the Nashua Armory. The NHDOT and City of Nashua both own land that could accommodate up to 600 parking spaces. Recently, CMAQ funds were awarded to the NHDOT to construct a train station/park and ride in this location.
d. Capital Requirements

An analysis of capital improvements that would be required to be made to the rail infrastructure and their associated costs was based upon a field inspection conducted jointly by NHDOT, NRPC, MBTA and Guilford Rail Services (GRS) in 1999 by Vanasse Hangen Brustlin. Based on this visit, two improvement scenarios were developed. Scenario 1 assumes that the existing infrastructure is upgraded to allow operating speeds up to 60 MPH for passenger trains and 40 MPH for freight trains. In Scenario 2, infrastructure is upgraded to support 79 MPH operating speeds for passenger trains and 60 MPH for freight trains. Scenario 2 also includes the construction of a second track between Chelmsford, MA and the New Hampshire State line, a distance of approximately 6 miles. This track would permit separate passenger and freight rail operations from the Lowell Station to the New Hampshire border.

The primary difference between the two scenarios is the weight of the new rail and the number of new ties installed. In Scenario 1, 115 LB continuously welded rail (CWR) and a 75 percent tie replacement ratio is recommended to support up to 60 MPH passenger train operating speeds. For the 79 MPH passenger train operating speeds in Scenario 2, 132 LB CWR and a 100 percent tie replacement ratio are recommended. The same signal and communications system improvements are recommended for both scenarios. Scenario 1 to Exit 2 is estimated to cost $21.5 million and an additional $5.1 million to downtown Nashua. Scenario 2 to Exit 2 is estimated to cost $32.6 million and an additional $5.6 million to downtown. It should be noted that Scenario 1 is preferred due to the fact that there will be no significant time savings associated with a 79-MPH speed for the 15-mile stretch from Nashua to Lowell.

Three different service scenarios were evaluated by the NRPC: low (consisting of six weekday round trips and three Saturday round trips); medium (consisting of 8 weekday round trips and 3 Saturday and Sunday round trips); and high (consisting of 12 weekday round trips and 4 Saturday and Sunday round trips). It is estimated that the low scenario to Nashua would have an annual operating cost of $1.7 million, with annual revenue of $1.2 million with an overall-operating deficit of $0.4 per year. The medium scenario would cost $2.4 million, with $1.5 in annual revenue and an annual operating deficit of $1.0 million. The high service scenario would cost $3.6 million, would raise $1.6 annually in revenue, and would experience a total operating deficit of $1.7 million.

To offset the annual operating deficit, a "Pilgrim Partnership" type of relationship between the Commonwealth of Massachusetts and the State of New Hampshire is envisioned. Under this scenario, train sets or other capital infrastructure will be purchased by New Hampshire and transferred to Massachusetts in lieu of the operating subsidy. A full train set, currently estimated at $15 million, could be used to offset operating deficits associated with twenty years of service by the MBTA.

e. Project Financing

The major source of financing for the infrastructure costs associated with passenger rail extension to Nashua would be the Federal Transportation Administration (FTA). The FTA could provide up to 80 percent of the costs incurred through the discretionary grant, with the remaining 20 percent provided by State funds and parking revenue generated at the various stations. This project has a good chance of obtaining federal funding. A New Starts earmark for the project was included in the TEA-21 legislation, and $1 million in federal funds were made available for the project’s preliminary engineering. CMAQ funds are viewed as the means by which to purchase a train set that could be offered to the MBTA to offset the annual operating deficit.

Click to return to the top of the Transportation Element
The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) replaced federal funding programs that date back to the Federal Interstate System of Highways under President Eisenhower. In addition to the restructuring of the federal funding programs, ISTEA also provides funding for conformance with the Clean Air Act Amendments of 1990. The Federal Interstate System had directed aid to four road system categories: Interstate, Primary, Secondary, and Urban. ISTEA created the National Highway System (NHS). The Interstate System remains as a component of the NHS. The NHS is intended to provide for interstate and inter-regional travel and to meet national defense requirements.

In addition to the NHS funding program, a new block grant funding program called the Surface Transportation Program (STP) is available for all roads (including NHS roads) not functionally classified as a local road or rural minor collector. Transit capital projects are also eligible under this program. ISTEA also created the Congestion Mitigation and Air Quality Improvement Program (CMAQ) to help states implement their air quality plans and attain the national standards for carbon monoxide, ozone, and particulate matter. CMAQ funding is focused on air quality improvements and provides funds that expand or initiate transportation services or policies with air quality benefits. In addition, the Transportation Enhancements Program (TE) provides funding for a variety of transportation-related projects such as pedestrian and bicycle facilities; preservation of abandoned railway corridors; and rehabilitation of historic transportation facilities.

The re-authorization of ISTEA is called the Transportation Equity Act for the 21st century (TEA-21). TEA-21 contains the same funding programs as ISTEA; however, TEA-21 allows for more flexible use of the funds. The City of Nashua has participated in the STP, CMAQ, and TE funding programs, as well as funding programs for transit under the Federal Transit Administration (FTA). The City should continue to apply for federal highway, transit, and bicycle and sidewalk funding.

b. Transportation Improvement Program (TIP) and the 10 Year State Transportation Improvement Program (STIP)

The Transportation Improvement Program (TIP) contains a priority list of transportation projects along with financial information for a ten-year period for the Nashua region. The TIP includes only those projects recommended in the Long-Range Regional Transportation Plan. The Long-Range Regional Transportation Plan is developed by the NRPC, which is the state-designated Metropolitan Planning Organization (MPO) for the Nashua Region. The plan is required in order to meet the Continuing, Cooperative, and Comprehensive planning process under federal rules. The TIP projects are submitted to NRPC from the municipalities and agencies (NHDOT) that initiate the projects. After the TIP is endorsed by the MPO, it is submitted to the funding agencies for inclusion in their annual programs. The TIP is reviewed and endorsed every two years and incorporated into a State TIP (STIP) in October of even-numbered years.

The following TIP projects have been recently implemented or are presently ongoing (with funding categories in parentheses):

- NH 101A Signal Coordination and widening (NHS).
- FEE Turnpike – Construct a Park and Ride lot in the vicinity of Exit 8 (State Turnpike).
- FEE Turnpike widening and exit ramp reconstruction (State Turnpike).
- Construct Nashua riverwalk greenway – Heritage Trail (TE).
- Manchester Street – Construct sidewalks, Nashua (TE).
- Sagamore Bridge Nashua reconstruction (State Turnpike).
- Construct a pedestrian/bicycle path on abandoned Nashua Railroad right of way (TE).
- Transit system – Capital assistance for paratransit vans (FTA).
- Nashua Transit System operating assistance (FTA).
- Nashua Transit System capital for equipment and facilities (FTA).
- NRPC Major Investment Study for Passenger Rail (FTA).
• East Dunstable Road sidewalks, Nashua (TE).

Other projects in the TIP that have not yet been implemented are:

• Broad Street Parkway, Nashua (STP).
• Circumferential Highway, (State Turnpike).
• Nashua Main Street corridor signal coordination (CMAQ).
• Searles Road bridge replacement Salmon Brook, Nashua (State Aid Bridges).
• New Searles Road bridge replacement Salmon Brook, Nashua (State Aid Bridges).
• Park and Ride lot Daniel Webster Highway near Exit 2, Nashua (CMAQ).
• Daniel Webster Highway pedestrian improvements, Nashua (TE).
• Construct a high occupancy vehicle road parallel to Daniel Webster Highway, Spit Brook Road to Poisson Ave. (CMAQ).

The Nashua area has about 15 percent of the state’s total population, and 11 percent of the State’s daily vehicle miles of travel. These two factors are averaged to develop the assumption that the region will receive 13 percent of the total state apportionment for STP Any Area Funding. A somewhat lower portion (10 percent) is assumed for NHS because Nashua has only one project to be funded through this source. STP Non Urban funds could also be a potential source for projects, but are not expected to substantially contribute toward the regional funding total. Tables X - 14 and X - 15 indicate the 2009-2020 totals that would be available based on the statewide apportionment that was available under ISTEA. These are very conservative figures, as it is expected that funding could increase by as much as 50 percent under TEA-21.

### TABLE X - 14
**Projected NRPC Area Federal Funds Apportionment: NHS and STP**

<table>
<thead>
<tr>
<th></th>
<th>NHS</th>
<th>STP-Any</th>
<th>Non-Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Apportionment</td>
<td>$19,618,403</td>
<td>$6,608,061</td>
<td>$2,990,463</td>
</tr>
<tr>
<td>MPO Share</td>
<td>0.10</td>
<td>0.13</td>
<td>0.01</td>
</tr>
<tr>
<td>2009</td>
<td>$1,961,840</td>
<td>$859,048</td>
<td>$29,905</td>
</tr>
<tr>
<td>2010</td>
<td>$1,961,840</td>
<td>$859,048</td>
<td>$29,905</td>
</tr>
<tr>
<td>2011</td>
<td>$1,961,840</td>
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<td>$29,905</td>
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<td>2012</td>
<td>$1,961,840</td>
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<td>2013</td>
<td>$1,961,840</td>
<td>$859,048</td>
<td>$29,905</td>
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<tr>
<td>2014</td>
<td>$1,961,840</td>
<td>$859,048</td>
<td>$29,905</td>
</tr>
<tr>
<td>2015</td>
<td>$1,961,840</td>
<td>$859,048</td>
<td>$29,905</td>
</tr>
<tr>
<td>2016</td>
<td>$1,961,840</td>
<td>$859,048</td>
<td>$29,905</td>
</tr>
<tr>
<td>2017</td>
<td>$1,961,840</td>
<td>$859,048</td>
<td>$29,905</td>
</tr>
<tr>
<td>2018</td>
<td>$1,961,840</td>
<td>$859,048</td>
<td>$29,905</td>
</tr>
<tr>
<td>2019</td>
<td>$1,961,840</td>
<td>$859,048</td>
<td>$29,905</td>
</tr>
<tr>
<td>2020</td>
<td>$1,961,840</td>
<td>$859,048</td>
<td>$29,905</td>
</tr>
<tr>
<td><strong>Total Available</strong></td>
<td><strong>$23,542,080</strong></td>
<td><strong>$10,308,576</strong></td>
<td><strong>$358,860</strong></td>
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</table>

### TABLE X - 15
**Urban Area Funds (STP 3AA)**

<table>
<thead>
<tr>
<th></th>
<th>FY '97 Balance</th>
<th>Yearly Distribution</th>
<th>STIP Projects Programmed</th>
<th>2020 Projected Available Funds</th>
</tr>
</thead>
</table>
All highway projects from the Regional Transportation Plan in the NRPC region initiated by the municipalities can be implemented within the financial resources identified in this section. Full funding for Circumferential Highway is assumed to be dependent upon the NHDOT’s ability to sufficiently raise toll revenues to pay off bonds for the project.

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## D. Financial Projections for Transit and Related Projects

### 1. Scope of Projections and Funding Sources

The following financial information pertains to transit projects that are contained in the Regional Transportation Plan covering a 20-year horizon:

- **Section 5307 (FTA)** – This funds routine capital projects, operating subsidies and planning assistance in urban areas. This is an urban formula grant program. The City of Nashua receives an apportionment of over $800,000 per year with no operating cap under TEA-21. Therefore, the amounts of capital and operating assistance that the City estimates will be applied for during the STIP period is financially constrained.

- **Section 5310 (FTA)** – This provides capital funds through the NHDOT to private non-profit organizations to assist them in providing transportation services to meet special needs of elderly and disabled persons. The NRPC region is apportioned $40,000 per year.

- **CMAQ Funds** - not considered beyond 2001.

- **Local Funding** - Local funds are required to meet the matching share of the federal funding requirements. The match requirement is 50 percent for operating assistance and 20 percent for capital expenditures. “Local” is broadly defined to include any non-federal funding source and typically includes municipalities and major users/beneficiaries.

- **User Funding** - Includes farebox receipts or other user revenues generated through the operation of a transit service.

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### 2. Projections of Available Funding (FY 2001 - 2020)

- Under FTA Section 5307, the City of Nashua is apportioned over $800,000 per year for operating assistance, capital purchases and planning. The NRPC anticipates that this funding will be made available through the year 2020. The total available for this period, then, would be $16 million. The Nashua Transit

<table>
<thead>
<tr>
<th></th>
<th>$6,168,598</th>
<th>$472,500</th>
<th>$0</th>
<th>$17,036,098</th>
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</thead>
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<tr>
<td>Nashua</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Hudson</td>
<td>($1,907,450)</td>
<td>$79,800</td>
<td>$718,400</td>
<td>($72,050)</td>
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<tr>
<td>Milford</td>
<td>$672,201</td>
<td>$47,400</td>
<td>$440,000</td>
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<tr>
<td>Merrimack</td>
<td>$198,000</td>
<td>$33,000</td>
<td>$0</td>
<td>$957,000</td>
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<tr>
<td>Litchfield</td>
<td>$80,100</td>
<td>$8,400</td>
<td>$0</td>
<td>$273,300</td>
</tr>
<tr>
<td>Pelham</td>
<td>$91,808</td>
<td>$5,400</td>
<td>$0</td>
<td>$216,008</td>
</tr>
<tr>
<td>Amherst</td>
<td>$28,800</td>
<td>$4,800</td>
<td>$0</td>
<td>$139,200</td>
</tr>
<tr>
<td>Hollis</td>
<td>$1,800</td>
<td>$300</td>
<td>$0</td>
<td>$8,700</td>
</tr>
</tbody>
</table>

Source: NHDOT.
System intends to provide service levels that can be supported by this level of funding.

- It is anticipated that local agency contracts will be continued, which significantly contribute to local funding and that the City of Nashua will continue to provide the local match that is required to secure the maximum amount of federal funds.

E. Transportation Network Deficiencies

1. Alternative Mode Deficiencies

Studies show that CITYBUS clientele is made up primarily of a limited segment of the traveling public. Convenience is an important element in travel demand. Although CITYBUS is one of the most inexpensive systems in operation, the fixed route service operates using one-hour headways, resulting in a lack of convenience for most commuters. Also, the system offers no fixed route services after 6:45 p.m., and only limited services on Saturday.

APPENDIX

State Aid Classifications

Class I, Primary State Highway System, consists of all existing or proposed highways on the primary state highway system, excepting all portions of such highways within the compact sections of towns and cities, provided that the portions of turnpikes and interstate highways within the compact sections of those cities are Class I highways.

Class II, Secondary State-Highway System, consists of all existing or proposed highways on the secondary state highway system, excepting portions of such highways within the compact sections of towns and cities. All sections improved to the satisfaction of the Commissioner are maintained and reconstructed by the State. All unimproved sections, where no state and local funds have been expended, must be maintained by the town or city in which they are located until improved to the satisfaction of the highway commissioner.

All bridges improved to state standards with state-aid bridge funds are maintained by the State. All other bridges shall be maintained by the city or town until such improvement is made.

Class III, Recreational Roads, consist of all such roads leading to, and within state reservations designated by the Legislature. The NHDOT assumes full control of reconstruction and maintenance of such roads.

Class IV Highways, consist of all highways within the compact sections of cities and towns listed in RSA 229:5, V. The compact section of any such city or town shall be the territory within such city or town where the frontage on any highway, in the opinion of the Highway Commissioner, is mainly occupied by dwellings or buildings in which people live or business is conducted, throughout the year. No highway reclassification from Class I or II to Class IV shall take effect until all rehabilitation needed to return the highway surface to reputable condition has been completed by the State.
Class V, Rural Highways, consist of all other traveled highways which the town or city has the duty to maintain regularly.

Class VI, Un-maintained Highways, consist of all other existing public ways, including highways subject to gates and bars, and highways not maintained in suitable condition for travel for five years or more.

Scenic Roads, are special town designations of Class IV, V, and VI roads where cutting or removal of a tree, or disturbance of a stone wall, must go through the hearing process and written approval of local officials (See RSA 231).

Functional Classification System

Functional System General Characteristics

Principal Arterial
1. Provides corridor movement suitable for substantial statewide or interstate travel and provides continuity for all rural arterials that intercept the urban area.
2. Serves the major traffic movements within urbanized areas such as between central business districts and outlying residential areas, between major intercity communities, or between major suburban centers.
3. Serves a major portion of the trips entering and leaving the urban area, as well as the majority of the through traffic desiring to bypass the central city.

Minor arterial
1. Serves trips of moderate length at a somewhat lower level of travel mobility than principal arterials.
2. Provides access to geographic areas smaller than those served by the higher system.
3. Provides intra-community continuity, but does not penetrate identifiable neighborhoods.

Collector
1. Collects traffic from local roads and channels it into the arterial system.
2. Provides land access and traffic circulation within residential neighborhoods, commercial and industrial area.

Local
1. Comprise all facilities not on higher systems.
2. Provides access to land and higher systems.
3. Through traffic usage discouraged.

Level-of-Service for signalized intersections

LOS A describes operations with very low delay, up to 5 seconds per vehicle. This level-of-service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay greater than 5 and up to 15 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.
LOS C describes operations with delay greater than 15 seconds and up to 25 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.

LOS D describes operations with delay greater than 25 and up to 40 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with delay greater than 40 and up to 60 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These higher delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of 60 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

[6] Note: Speed “humps” are different than speed “bumps” in that they are more gradual breaks in the pavement and are not as disruptive to the motorist’s ride.
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<th>Title</th>
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</tr>
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</tr>
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</tr>
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XI. HOUSING ELEMENT

I. INTRODUCTION

One of the most important functions of a Master Plan is to examine a community’s housing stock and evaluate housing opportunities for persons and families of all income levels. The State of New Hampshire, in RSA 674:2, requires Master Plans to include:

“...a housing section which analyzes existing housing resources and addresses current and future housing needs of residents of all levels of income of the municipality and of the region in which it is located, as identified in the regional housing needs assessment.”

The Nashua Regional Planning Commission (NRPC) completed its most recent regional housing needs assessment in August 1999. The 1999 Regional Housing Needs Assessment (RHNA) covers the twelve member communities of Amherst, Brookline, Hollis, Hudson, Litchfield, Lyndeborough, Merrimack, Milford, Mont Vernon, Nashua, Pelham, and Wilton. The previous RHNA was completed in 1994, and relied heavily on 1990 Census data. The new RHNA is based on more recent data, when available, but for some types of data the 1990 Census is still the most recent and comprehensive data available. Within this chapter the terms "NRPC Region," "Greater Nashua" and "Nashua PMSA" define three similar yet different jurisdictions. The NRPC Region is comprised of the twelve member communities of the Nashua Regional Planning Commission: Amherst, Brookline, Hollis, Hudson, Litchfield, Lyndeborough, Merrimack, Milford, Mont Vernon, Nashua, Pelham and Wilton. "Greater Nashua" is a designation of the New Hampshire Association of Realtors (NHAR) and includes all communities in the NRPC region, excluding Pelham, Wilton and Lyndeborough. The Nashua Primary Metropolitan Statistical Area (PMSA) is the designation made by the US Census for the Nashua metropolitan area. The PMSA includes all towns in the NRPC region excluding Pelham, but including New Ipswich and Mason.

The Nashua Planning Department gratefully acknowledges NRPC for permission to reproduce tables, text, and
maps from the RHNA for use in this element. Much of the descriptive text for the tables is from the RHNA, modified when needed to highlight Nashua’s situation or position relative to the region and the State of New Hampshire.

Because RSA 674:2 requires Master Plans to examine housing needs in the context of the region, this element of the Nashua Master Plan Update will include both data/tables that pertain solely to Nashua, and data/tables that show how Nashua compares to the other communities in the region, and the State of New Hampshire. Before examining housing trends and data, a summary history of housing in Nashua is provided in the paragraphs that follow.

Due to the fact that 1990 Census data is the most current data available for many housing and income statistics, it is recommended that the pertinent sections of this Housing Element be revised once 2000 Census data becomes available. A more accurate assessment of the City’s housing needs will require the 2000 Census data, which should be available in spring 2002.

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A. Overview

Housing opportunities within the City of Nashua range from high-density urban settings to suburban, and even rural, areas in the southwest quadrant. The higher density single-family, duplex, and multi-family housing is largely concentrated in the older neighborhoods near the urban core. The lower density suburban subdivisions form an arc to the north, south, and west of the older sections. This can be readily seen on Map XII – 1 in the Land Use Element, which shows the sequence of development in Nashua since 1980.

The older high-density neighborhoods were developed largely in the 19th and early 20th centuries and include such uses as neighborhood businesses, schools, and churches, as well as housing. The mix of land uses in these older neighborhoods was complementary, and provided employment, shopping, and recreational opportunities within walking distance for residents. Older neighborhoods such as French Hill, Crown Hill, the North End, and the Tree Streets have some of the City’s finest buildings as well as some of the housing most in need of attention.

The post World War II housing patterns can be divided into three periods. The residential areas built in the 1950’s and 1960’s typically consist of detached ranch or cape cod style houses on quarter acre lots. There are some duplexes and multi-family houses, generally located near to the central city. In the 1970’s and 1980’s densities decreased further and homes became larger and were almost completely separated from other uses such as neighborhood businesses. The multi-family housing built in this era included garden apartments, townhouses, condominiums, and rental units and were located mainly near Route 101A, in south Nashua in the vicinity of Exit 1, and along the West Hollis Street – Main Dunstable Road corridor. Starting in the 1980’s and continuing through the 1990’s, we began to see some cluster housing in an effort to preserve open space. Several of the newer multi-family developments were often built with several buildings sharing a large common lawn and private road.

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B. Topics to be covered in the Housing Element

This Housing Element will first examine housing trends, mostly for the period 1980 – 1997. The latter date is the latest for which complete data on all of the communities in the Nashua region is available. The increase in the number of housing units, the types of housing units constructed, the age of the housing stock, and a geographic analysis of the distribution of housing types in Nashua will be presented in that section.

Following the above look at housing trends, the characteristics of owner-occupied housing, including both single-family homes and condominiums, will be examined. Recent sales data will be presented, and the amount and
distribution of vacant residentially zoned land in Nashua will be examined, as well. The characteristics of rental housing will then be examined. Recent trends in rents and vacancy rates will be presented, along with information on the number and location of apartment complexes in Nashua and the region.

The final two sections will explore assisted housing in Nashua and in the region, and examine existing and future housing needs for households at all income levels, both as presented in the RHNA and as developed by the City’s Community Development Division staff.

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C. Goals, Objectives and Recommendations

GOAL: Ensure that the supply of housing meets the needs of Nashua’s residents, in a well-planned manner.

1. OBJECTIVE: HOUSING IN GENERAL

Maintain a wide variety of housing types, residential densities, and open space, meeting the needs of the full spectrum of our citizens.

Recommendations:

a. Continue to prevent and address housing discrimination.
b. Devote available resources to revitalizing unstable, deteriorated neighborhoods.
c. Protect the character of existing neighborhoods through zoning regulation and enforcement.
d. Ensure safe, sanitary housing through proactive housing code enforcement.
e. Explore opportunities to provide shopping, medical facilities, recreation, and public transportation near high-density housing.
f. Explore a mix of land uses that promote pedestrian accessibility between housing and essential services (i.e. shopping, etc.).
g. Recognize and address the housing needs for an aging population.
h. Recognize and address the parking needs of inner city residents.

2. OBJECTIVE: HOMEOWNERSHIP

Strive to meet the needs of all citizens seeking owner-occupied housing.

Recommendations:

a. Use existing federal and State housing programs to assist moderate-income renters with the purchase of affordable units.
b. Consider an amendment to the Nashua Revised Ordinance (NRO) to allow Incentive Zoning in targeted areas (i.e. the City would allow residential density in excess of that permitted in the existing or underlying zoning, and require that a certain percentage of additional units be affordable).
c. Promote continued and expanded homeownership in inner city neighborhoods in support of neighborhood revitalization efforts.

3. OBJECTIVE: RENTAL HOUSING

Work to ensure that the stock of rental housing is of sufficient quantity and quality to meet the needs of those desiring this housing option.
Recommendations:
- Increase the supply of rental housing in the City to meet the needs of all income groups.
- Give priority to the rehabilitation of vacant and or substandard inner city residential buildings that can be used as rental housing.
- Improve housing code enforcement for rental housing.
- Review the City’s Zoning Ordinance to assess opportunities for providing alternative housing designs.

4. OBJECTIVE: ASSISTED HOUSING

Provide housing assistance to those in need.

Recommendations:
- Promote the use of existing State and federal housing programs.
- Target public financial assistance to those who will permanently maintain affordability of housing units.
- Allow home-sharing to make effective use of large homes.
- Support the development of transitional and or assisted housing facilities and associated programs for those in need to avoid displacement and homelessness.

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II. HOUSING TRENDS

A. Families and Households

The following table provides as an introductory context for the remainder of this section on housing trends. It is important to remember that the characteristics of households in a city are the basis for any housing needs analysis. The following data is from the 1990 Census. As 2000 Census data becomes available this table should be updated, as should much of the data presented in this Housing Element.

**TABLE XI – 1**
FAMILIES AND HOUSEHOLDS, 1990
City, Region, County and State

<table>
<thead>
<tr>
<th></th>
<th>Total Households</th>
<th>One person Households</th>
<th>2 or More Person Households</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Married Couple Households</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Male Head Households</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Female Head Households</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Non-Family Households</td>
</tr>
<tr>
<td>NASHUA</td>
<td>31,051</td>
<td>7,714 (24.8%)</td>
<td>17,024 (54.8%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1,015 (3.3%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2,874 (9.3%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2,424 (7.8%)</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>62,141</td>
<td>12,006 (19.3%)</td>
<td>39,002 (62.8%)</td>
</tr>
<tr>
<td>Hillsborough</td>
<td>124,567</td>
<td>27,495 (22.1%)</td>
<td>73,455 (59.0%)</td>
</tr>
<tr>
<td>County</td>
<td></td>
<td></td>
<td>3,992 (3.2%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11,026 (8.9%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8,599 (6.9%)</td>
</tr>
<tr>
<td>State of NH</td>
<td>411,186</td>
<td>90,364 (22.0%)</td>
<td>245,307 (59.6%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12,517 (3.0%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>34,777 (8.4%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>28,221 (6.9%)</td>
</tr>
</tbody>
</table>

Source: 1990 US Census, STF1A, Table P16, as compiled by NRPC

NOTE: A household includes all the persons who occupy a housing unit. One person in the household is designated as the householder. A
family consists of a householder and one or more other persons living in the same household who are related to the householder by birth, marriage, or adoption.

As can be seen in Table XI - 1, nearly a quarter (24.8%) of Nashua’s households are single person households. This percentage is higher than for the region, county, and State, primarily due to a higher concentration of young adults and a larger quantity of rental units. The City has 5% to 8% less married households than the region, county, and State, which translates into slightly more single parent and non-family households than for the region, county, and State.

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B. Increase in the Number of Housing Units, 1980 - 1999

As seen in Table XI -2 below, the number of housing units in Nashua increased dramatically from 1980 to 1999, from 25,444 to 34,931, an increase of 37.3%. However, while the City’s absolute number of housing units increased by a third in 20 years, the City’s relative share of the region’s housing supply actually decreased in that period. This is due to the tremendous amount of residential development in neighboring communities. As will be seen shortly, housing starts in the Nashua planning region (NRPC region) as a whole have been increasing at a higher rate than the City’s. The number of housing units in the State increased by 43.4% during this 19-year period. Although the region, county, and State outpaced Nashua’s amazing growth of the 1980’s, the City of Nashua still accounts for almost half of the housing in the region, and approximately 6% of the housing units in the State.

| TABLE XI – 2 |
| TOTAL HOUSING UNITS, 1980-1999 |
| 1980 | 1999 | Percent Change |
| NASHUA | 25,444 | 34,931 | 37.3% |
| NRPC REGION | 47,922 | 74,206 | 54.8% |
| STATE OF NH | 386,381 | 554,074 | 43.4% |

Source: 1990 Census, Office of State Planning, NRPC.

| TABLE XI - 3 |
| DWELLING UNITS IN NASHUA SINCE THE 1990 CENSUS |
| SF Detached | 63 | 98 | 83 | 87 | 110 | 93 | 122 | 104 | 185 | 945 | 118 |
| SF Attached | 6 | 14 | 0 | 17 | 53 | 8 | 41 | 20 | 4 | 163 | 20 |
| Duplex, MF, Mobile Home, Conversions* | 15 | -4 | -10 | -14 | -11 | 24 | 38 | 4 | 60 | 102 | 13 |
| Year End Total | 84 | 108 | 73 | 90 | 152 | 125 | 201 | 128 | 249 | 1210 | 151 |
| Estimated # Dwelling Units, January 1999 | 34,593 | 34,593 |

Source: City of Nashua Community Development Division
*Minus demolitions.

Background: The 1990 Census counted dwelling units to the end of March 1990. This table tracks new units and net units from that period onward. The numbers reflect the number of building permits issued for each type of dwelling unit and do not reflect occupancy permits or rates. As such, the figures provided here may differ slightly from other estimates of dwelling units, such as those produced by the Office of State Planning. The numbers are for net dwellings of each type and include subtractions for demolitions.
As seen in Table XI – 3, Nashua’s post-recession recovery is reflected in the significant increase in the number of residential building permits issued between 1993 and 1994. 69% more residential building permits were issued in 1994 than in 1993. Since that time, the number of permits issued has remained fairly constant, with net increases averaging 118 detached single-family homes, 20 attached single-family units \( \textit{(mostly townhouse condominium units)} \), and 13 multi-family units per year. Another jump in permits issued is seen in 1998, with 185 single-family home permits issued in that year compared to 104 in 1997. It remains to be seen whether this level of building activity will continue for an extended period of time.

**TABLE XI - 4**

**RESIDENTIAL BUILDING PERMIT ACTIVITY for REGION’S MUNICIPALITIES, 1990-1999**

<table>
<thead>
<tr>
<th>Rank/Community</th>
<th>Single Family</th>
<th>Multi Family (2+)</th>
<th>Manufactured Housing</th>
<th>Total Residential</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nashua</td>
<td>1,119</td>
<td>415</td>
<td>14</td>
<td>1,548</td>
</tr>
<tr>
<td>2. Hudson</td>
<td>1,117</td>
<td>65</td>
<td>30</td>
<td>1,212</td>
</tr>
<tr>
<td>3. Merrimack</td>
<td>1,044</td>
<td>78</td>
<td>0</td>
<td>1,122</td>
</tr>
<tr>
<td>4. Pelham</td>
<td>637</td>
<td>56</td>
<td>0</td>
<td>693</td>
</tr>
<tr>
<td>5. Amherst</td>
<td>650</td>
<td>23</td>
<td>9</td>
<td>682</td>
</tr>
<tr>
<td>6. Litchfield</td>
<td>634</td>
<td>20</td>
<td>5</td>
<td>659</td>
</tr>
<tr>
<td>7. Milford</td>
<td>508</td>
<td>-5</td>
<td>42</td>
<td>545</td>
</tr>
<tr>
<td>8. Hollis</td>
<td>498</td>
<td>36</td>
<td>6</td>
<td>540</td>
</tr>
<tr>
<td>9. Brookline</td>
<td>474</td>
<td>2</td>
<td>2</td>
<td>478</td>
</tr>
<tr>
<td>10. Wilton</td>
<td>132</td>
<td>0</td>
<td>3</td>
<td>135</td>
</tr>
<tr>
<td>11. Lyndeborough</td>
<td>88</td>
<td>2</td>
<td>12</td>
<td>102</td>
</tr>
<tr>
<td>12. Mont Vernon</td>
<td>97</td>
<td>0</td>
<td>18</td>
<td>115</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>6,998</td>
<td>692</td>
<td>141</td>
<td>7,831</td>
</tr>
</tbody>
</table>

Source: Office of State Planning, as compiled by City of Nashua, Community Development Division.

This survey does not differentiate between condominium and single-family home; Townhouses and detached condos are considered to be a "Single-family" unit.

The 1990’s were a period of steady growth in the region. During this time, an additional 7,831 housing units were permitted. Table XI – 4 summarizes residential building permits issued for the region’s municipalities in the 1990’s. The larger communities in the NRPC region, Nashua, Hudson and Merrimack, experienced the greatest whole number gains in residential building permits. As larger communities, they have the public services and infrastructure needed to absorb and accommodate growth. While the larger communities, including Nashua, experienced the greatest volume of growth, several of the smaller towns experienced a much greater \textit{proportional} share of growth, as seen in Table XI - 5. Although the region has begun to outpace Nashua in overall housing production, the City continues to provide the greatest share of multi-family housing.

**TABLE XI - 5**

**RESIDENTIAL BUILDING PERMIT ACTIVITY FOR REGION’S MUNICIPALITIES, 1990-1999**

<table>
<thead>
<tr>
<th>Rank/Community</th>
<th>Housing Units, 1990</th>
<th>Housing Units, 1999</th>
<th>Percent Change 1990-1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Brookline</td>
<td>881</td>
<td>1,359</td>
<td>54.3%</td>
</tr>
<tr>
<td>2. Litchfield</td>
<td>1,845</td>
<td>2,504</td>
<td>35.7%</td>
</tr>
<tr>
<td>3. Hollis</td>
<td>2,006</td>
<td>2,546</td>
<td>26.9%</td>
</tr>
<tr>
<td>4. Pelham</td>
<td>3,118</td>
<td>3,811</td>
<td>22.2%</td>
</tr>
<tr>
<td>5. Lyndeborough</td>
<td>488</td>
<td>590</td>
<td>20.9%</td>
</tr>
<tr>
<td>6. Amherst</td>
<td>3,179</td>
<td>3,861</td>
<td>21.5%</td>
</tr>
<tr>
<td>7. Mont Vernon</td>
<td>614</td>
<td>729</td>
<td>18.7%</td>
</tr>
<tr>
<td>8. Hudson</td>
<td>6,902</td>
<td>8,114</td>
<td>17.6%</td>
</tr>
</tbody>
</table>
Proportional growth in building permit activity can be an indicator of the degree to which the community has experienced change and stress associated with growth. Within the region, Brookline experienced disproportionately high growth during the 1990’s. Its rate of increase (54.3%) in residential building permits was more than four times higher than regional (11.8%) and State (10.3%) growth, as illustrated in Table XI-5. Other communities with disproportionate growth, particularly Litchfield (35.7%) and Hollis (26.9%), have been traditionally rural. The increased demands on municipal services and threats to community character have been consistent issues for these communities throughout the decade. It is interesting to note that whereas Nashua had the greatest numerical increase in number of housing units from 1990 to 1999, it had the lowest proportional increase in the region! This is yet another indication that while Nashua continues to grow, a greater proportion of the region’s growth is being absorbed by the other communities in the region.

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C. Housing Units by Type

| TABLE XI-6 |
| HOUSING UNITS BY TYPE for |
| CITY, REGION, AND STATE, 1980 – 1999 |
| (Italicized numbers indicate % of total housing units by type.) |

<table>
<thead>
<tr>
<th></th>
<th>SINGLE-FAMILY</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1980</td>
<td>1999</td>
</tr>
<tr>
<td>NASHUA</td>
<td>12,399</td>
<td>15,852</td>
</tr>
<tr>
<td></td>
<td>48.7%</td>
<td>45.9%</td>
</tr>
<tr>
<td>NRPC REGION</td>
<td>30,373</td>
<td>44,843</td>
</tr>
<tr>
<td></td>
<td>63.4%</td>
<td>62.2%</td>
</tr>
<tr>
<td>STATE OF NH</td>
<td>245,259</td>
<td>337,727</td>
</tr>
<tr>
<td></td>
<td>63.5%</td>
<td>62.6%</td>
</tr>
<tr>
<td></td>
<td>MULTI-FAMILY</td>
<td></td>
</tr>
<tr>
<td>NASHUA</td>
<td>12,418</td>
<td>17,927</td>
</tr>
<tr>
<td></td>
<td>48.8%</td>
<td>51.9%</td>
</tr>
<tr>
<td>NRPC REGION</td>
<td>16,176</td>
<td>26,730</td>
</tr>
<tr>
<td></td>
<td>33.8%</td>
<td>37.1%</td>
</tr>
<tr>
<td>STATE OF NH</td>
<td>118,159</td>
<td>169,387</td>
</tr>
<tr>
<td></td>
<td>30.6%</td>
<td>31.4%</td>
</tr>
<tr>
<td></td>
<td>MANUFACTURED HOUSING</td>
<td></td>
</tr>
<tr>
<td>NASHUA</td>
<td>627</td>
<td>1,152</td>
</tr>
<tr>
<td></td>
<td>2.5%</td>
<td>3.3%</td>
</tr>
<tr>
<td>NRPC REGION</td>
<td>1,373</td>
<td>2,633</td>
</tr>
<tr>
<td></td>
<td>2.9%</td>
<td>3.7%</td>
</tr>
<tr>
<td>STATE OF NH</td>
<td>22,963</td>
<td>46,960</td>
</tr>
<tr>
<td></td>
<td>5.9%</td>
<td>8.7%</td>
</tr>
</tbody>
</table>

Source: Census, Office of State Planning

Note: Multi-family includes attached units, duplexes and 3+ units.
1. **Single-Family Units**

Data describing housing units by type (Table XI-6) indicate that the City of Nashua contains a large percentage (35%) of single-family homes in the region. While the number of single-family units has increased substantially, from 12,399 in 1980 to 15,852 in 1999, the percentage of single-family units as compared to total housing units in the City has decreased, from 48.7% in 1980 to 45.9% in 1999. (As will be seen in Table XI-7 that follows, Nashua has the lowest percentage of single-family homes and the highest percentage of multi-family units of any community in the region.)

2. **Multi-Family Units**

The reason that the percentage of single-family units in Nashua decreased over the 19-year period is that the number of multi-family units increased by a staggering 44.4%. Multi-family units in the region increased even faster at 65.2%, but Nashua still contains the majority (67%) of multi-family units in the region. However, as will be seen, construction of multi-family units dropped substantially in the 1990’s.

3. **Manufactured Housing**

There were 1,152 manufactured homes in Nashua in 1999, representing 3.3% of the City’s housing stock. Nashua’s 1,152 manufactured homes represented 44% of the Region’s stock of this type of housing.

Table XI-7 below depicts the total number of housing units existing in 1999 by community. The NRPC region had a similar proportion (60.4%) of single-family homes as the State (61%). In all but two communities, Nashua and Milford, single-family homes constitute more than 60% of the housing supply. Of note is that Nashua contains the lowest proportion of single-family homes in the region. At one time, the communities of Nashua and Milford contained the region's textile mills and associated housing, which led to the creation of areas of dense residential settlement. This is also true, to a certain extent, of parts of Hudson and Wilton. These areas supply the region with a significant portion of its affordable housing supply. In some of the more rural communities, the significant portions of affordable housing are comprised of manufactured units.

### TABLE XI-7

**PROPORTION of SINGLE-FAMILY UNITS FOR REGION’S MUNICIPALITIES, 1999**

<table>
<thead>
<tr>
<th>Community</th>
<th>Housing Units 1999</th>
<th>Single-family Units 1999</th>
<th>Percent Single-family 1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>3,861</td>
<td>3,487</td>
<td>90.3%</td>
</tr>
<tr>
<td>Brookline</td>
<td>1,266</td>
<td>1,359</td>
<td>93.2%</td>
</tr>
<tr>
<td>Hollis</td>
<td>2,281</td>
<td>2,546</td>
<td>89.6%</td>
</tr>
<tr>
<td>Hudson</td>
<td>8,114</td>
<td>5,363</td>
<td>66.1%</td>
</tr>
<tr>
<td>Litchfield</td>
<td>2,504</td>
<td>2,085</td>
<td>83.3%</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>518</td>
<td>590</td>
<td>87.8%</td>
</tr>
<tr>
<td>Merrimack</td>
<td>9,037</td>
<td>6,450</td>
<td>71.4%</td>
</tr>
<tr>
<td>Milford</td>
<td>5,338</td>
<td>2,715</td>
<td>50.9%</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>729</td>
<td>616</td>
<td>84.5%</td>
</tr>
<tr>
<td>Nashua</td>
<td>34,931</td>
<td>15,852</td>
<td>45.4%</td>
</tr>
<tr>
<td>Pelham</td>
<td>3,811</td>
<td>3,240</td>
<td>85.0%</td>
</tr>
<tr>
<td>Wilton</td>
<td>1,386</td>
<td>970</td>
<td>70.0%</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>74,206</td>
<td>44,843</td>
<td>60.4%</td>
</tr>
<tr>
<td>State of NH</td>
<td>601,034</td>
<td>337,727</td>
<td>61.0%</td>
</tr>
</tbody>
</table>


Single-family excludes Manufactured housing.
Table XI - 8 shows that Nashua has the greatest number of manufactured housing units (1,152) in the region, while Mont Vernon (12%) has the greatest proportion. Nashua also has the largest number and proportion of multi family housing units. The NRPC region had a larger percentage of multi family units (36%) than Statewide (30.6%).

### TABLE XI - 8

**HOUSING STOCK BY TYPE**
FOR REGION’S MUNICIPALITIES, 1999

<table>
<thead>
<tr>
<th>Community</th>
<th>Single-family Units, 1999</th>
<th>Multi-Family (2+) Units 1999</th>
<th>Manufactured Housing Units 1999</th>
<th>Housing Units 1999</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(for % of Total see previous table)</td>
<td>(% of Total)</td>
<td>(% of Total)</td>
<td>1999</td>
</tr>
<tr>
<td>Amherst</td>
<td>3,487</td>
<td>276 (7.1%)</td>
<td>98 (2.5%)</td>
<td>3,861</td>
</tr>
<tr>
<td>Brookline</td>
<td>1,266</td>
<td>59 (4.3%)</td>
<td>34 (2.5%)</td>
<td>1,359</td>
</tr>
<tr>
<td>Hollis</td>
<td>2,281</td>
<td>159 (6.3%)</td>
<td>106 (4.2%)</td>
<td>2,546</td>
</tr>
<tr>
<td>Hudson</td>
<td>5,363</td>
<td>2,511 (31.0%)</td>
<td>240 (3.0%)</td>
<td>8,114</td>
</tr>
<tr>
<td>Litchfield</td>
<td>2,085</td>
<td>287 (11.5%)</td>
<td>132 (5.3%)</td>
<td>2,504</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>518</td>
<td>32 (5.4%)</td>
<td>40 (6.8%)</td>
<td>590</td>
</tr>
<tr>
<td>Merrimack</td>
<td>6,450</td>
<td>2,377 (26.3%)</td>
<td>210 (2.3%)</td>
<td>9,037</td>
</tr>
<tr>
<td>Milford</td>
<td>2,715</td>
<td>2,192 (41.0%)</td>
<td>431 (8.0%)</td>
<td>5,338</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>616</td>
<td>25 (3.4%)</td>
<td>88 (12.0%)</td>
<td>729</td>
</tr>
<tr>
<td>Nashua</td>
<td>15,852</td>
<td>17,927 (51.3%)</td>
<td>1,152 (3.3%)</td>
<td>34,931</td>
</tr>
<tr>
<td>Pelham</td>
<td>3,240</td>
<td>540 (14.2%)</td>
<td>31 (0.8%)</td>
<td>3,811</td>
</tr>
<tr>
<td>Wilton</td>
<td>970</td>
<td>345 (24.9%)</td>
<td>71 (5.1%)</td>
<td>1,386</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>44,843</td>
<td>26,730 (36.0%)</td>
<td>2,633 (3.6%)</td>
<td>72,206</td>
</tr>
<tr>
<td>State of NH</td>
<td>337,727</td>
<td>169,387 (30.6%)</td>
<td>46,960 (8.5%)</td>
<td>554,074</td>
</tr>
</tbody>
</table>

Source: Office of State Planning, as compiled by City of Nashua, Community Development Division.

Click to return to the top of the Housing Element

D. Age of the Housing Stock

The proportion of housing built prior to 1940 is an indicator of housing stock condition, and is directly related to the amount of development that has occurred in recent decades. Table XI – 9 presents the numbers and percent of units built before 1940 for the region’s municipalities. The NRPC region has a considerably smaller percentage (15.75%) of units built prior to 1940 than does the State of New Hampshire (24.68%). Within the region, communities that experienced relatively less growth than other towns had the greatest percentage of older homes, namely Wilton (39.47%), Lyndeborough (32.71%) and Mont Vernon (22.77%). The traditional city centers of Nashua (20.8%) and Milford (22.27%) also had higher percentage of units built prior to 1940. As the historic center of the region, Nashua contains 62% of the pre-1940 housing stock. The newer, rapidly developing suburbs of Litchfield (3.4%), Merrimack (3.9%) and Hudson (8.6%) had the lowest percentages of older units.

### TABLE XI - 9

**AGE OF HOUSING STOCK/UNITS BUILT BEFORE 1940**
FOR REGION’S MUNICIPALITIES, 1999

<table>
<thead>
<tr>
<th>Location</th>
<th>Housing Units Pre-1940</th>
<th>Total Housing Units 1997</th>
<th>Percent Pre-1940</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>417</td>
<td>3,861</td>
<td>10.8%</td>
</tr>
</tbody>
</table>
Click to return to the top of the Housing Element

III. OWNER-OCCUPIED HOUSING

A. Sales Data

1. Regional Data

In examining sales data, it is important to consider regional context. The following data from the Regional Housing Needs Assessment for the Nashua (NRPC) region and greater Nashua as defined by the New Hampshire Association of Realtors is presented, followed by Nashua-specific data. Greater Nashua includes all the communities in the NRPC region with the exception of Pelham, Lyndeborough, and Wilton.

The number of home sales is an indicator of housing market activity. The data indicates that the number of home sales have increased steadily since 1991. In 1999 there was an increase of 40% more home sales than there were in 1991, in both Greater Nashua and within the NRPC region.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Nashua</td>
<td>1,434</td>
<td>1,932</td>
<td>2,180</td>
<td>1,968</td>
<td>1,903</td>
<td>2,249</td>
<td>2,060</td>
<td>2,959</td>
<td>2,392</td>
</tr>
<tr>
<td>State of NH</td>
<td>7,151</td>
<td>9,121</td>
<td>10,421</td>
<td>9,936</td>
<td>10,600</td>
<td>13,812</td>
<td>16,329</td>
<td>18,538</td>
<td>19,486</td>
</tr>
</tbody>
</table>

Source: New Hampshire Association of Realtors, as compiled by City of Nashua, Community Development Division; includes all residential properties; Greater Nashua includes all towns in the NRPC region excluding Pelham, Lyndeborough and Wilton.

TABLE XI - 11

AVERAGE (MEAN) SALES PRICE, BY YEAR, REGION AND STATE (Dollars)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Nashua</td>
<td>128,171</td>
<td>118,127</td>
<td>118,659</td>
<td>118,510</td>
<td>118,163</td>
<td>111,851</td>
<td>132,136</td>
<td>140,836</td>
<td>151,851</td>
</tr>
<tr>
<td>State</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Despite the recession of the early 1990’s, residential sales prices have remained relatively constant in the State as a whole. In the Nashua area, the market clearly hit a low point between the years of 1992 and 1996. Since 1996, there has been a tremendous upswing in sales prices, which have reached a point exceeding those of the early 1990’s. In the Greater Nashua area, the average residential sales price of $151,851 is considerably higher than in 1991 ($128,171).

Median sales prices are also higher in the Nashua region than they are in the State as a whole. Median sales indicate the same upswing in housing sales costs since 1996.

### TABLE XI - 12

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Nashua</td>
<td>$109,673</td>
<td>$110,813</td>
<td>$122,748</td>
<td>$135,450</td>
</tr>
<tr>
<td>State of NH</td>
<td>$100,417</td>
<td>$122,748</td>
<td>$118,084</td>
<td>$120,988</td>
</tr>
</tbody>
</table>

Median sales prices are also higher in the Nashua region than they are in the State as a whole. Median sales indicate the same upswing in housing sales costs since 1996.

### TABLE XI - 13

<table>
<thead>
<tr>
<th>NUMBER OF SALES by MUNICIPALITIES, 1998 and 1991</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Year Comparison/Total Residential Sales</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>282</td>
<td>125</td>
<td>125.6%</td>
</tr>
<tr>
<td>Brookline</td>
<td>108</td>
<td>63</td>
<td>71.4%</td>
</tr>
<tr>
<td>Hollis</td>
<td>164</td>
<td>89</td>
<td>84.3%</td>
</tr>
<tr>
<td>Hudson</td>
<td>413</td>
<td>238</td>
<td>73.5%</td>
</tr>
<tr>
<td>Litchfield</td>
<td>163</td>
<td>88</td>
<td>85.2%</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>N/A</td>
<td>13</td>
<td>N/A</td>
</tr>
<tr>
<td>Merrimack</td>
<td>622</td>
<td>260</td>
<td>139.2%</td>
</tr>
<tr>
<td>Milford</td>
<td>291</td>
<td>129</td>
<td>125.6%</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>36</td>
<td>24</td>
<td>50.0%</td>
</tr>
<tr>
<td>Nashua</td>
<td>1,496</td>
<td>799</td>
<td>87.2%</td>
</tr>
<tr>
<td>Pelham</td>
<td>132</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Wilton</td>
<td>85</td>
<td>31</td>
<td>172.2%</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>3,792</td>
<td>1,859</td>
<td>104.0%</td>
</tr>
<tr>
<td>Greater Nashua</td>
<td>2,959</td>
<td>1,434</td>
<td>106.3%</td>
</tr>
<tr>
<td>State of NH</td>
<td>18,301</td>
<td>7,151</td>
<td>155.9%</td>
</tr>
</tbody>
</table>

Source: Base data from New Hampshire Association of Realtors, as compiled by NRPC; includes all residential properties. NRPC region includes all towns in the region except where indicated. This is different than “Greater Nashua” as defined by the New Hampshire Association of Realtors.

Table XI-13 shows that the number of residential sales in the NRPC region doubled from 1991 to 1998. This is a lesser increase than the 156% increase in the number of residential sales seen State-wide. Within the region, the greatest increase in the number of home sales was experienced in the communities of Wilton (172.2%), Merrimack (139.2%), Amherst (125.6%), and Milford (125.6%).
### TABLE XI - 14
**AVERAGE (MEAN) RESIDENTIAL SALES PRICES, MUNICIPALITIES**
**1998, 1994 and 1991 Comparison**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>$196,000</td>
<td>$188,226</td>
<td>$174,296</td>
<td>4.0%</td>
<td>12.4%</td>
</tr>
<tr>
<td>Brookline</td>
<td>$168,000</td>
<td>$147,668</td>
<td>$147,795</td>
<td>13.8%</td>
<td>13.7%</td>
</tr>
<tr>
<td>Hollis</td>
<td>$241,000</td>
<td>$208,604</td>
<td>$228,355</td>
<td>15.5%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Hudson</td>
<td>$130,000</td>
<td>$120,052</td>
<td>$119,094</td>
<td>8.3%</td>
<td>9.2%</td>
</tr>
<tr>
<td>Litchfield</td>
<td>$146,000</td>
<td>$102,358</td>
<td>$116,528</td>
<td>21.3%</td>
<td>24.8%</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>N/A</td>
<td>$102,509</td>
<td>$106,972</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Merrimack</td>
<td>$127,000</td>
<td>$122,722</td>
<td>$129,275</td>
<td>3.5%</td>
<td>-1.8%</td>
</tr>
<tr>
<td>Milford</td>
<td>$137,302</td>
<td>$108,341</td>
<td>$110,443</td>
<td>24.3%</td>
<td>24.1%</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>$214,000</td>
<td>$143,590</td>
<td>$134,630</td>
<td>49.0%</td>
<td>59.0%</td>
</tr>
<tr>
<td>Nashua</td>
<td>$135,000</td>
<td>$118,463</td>
<td>$126,523</td>
<td>14.0%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Pelham</td>
<td>$164,000</td>
<td>$131,749</td>
<td>$148,500</td>
<td>24.5%</td>
<td>10.4%</td>
</tr>
<tr>
<td>Wilton</td>
<td>$110,000</td>
<td>$108,208</td>
<td>$157,269</td>
<td>1.7%</td>
<td>-30.1%</td>
</tr>
<tr>
<td>Greater Nashua</td>
<td>$140,836</td>
<td>$118,510</td>
<td>$128,171</td>
<td>19.2%</td>
<td>10.0%</td>
</tr>
<tr>
<td>State of NH</td>
<td>$118,084</td>
<td>$111,603</td>
<td>$119,364</td>
<td>5.8%</td>
<td>-1.1%</td>
</tr>
</tbody>
</table>


N/A indicates that data not available or sample size too small.

Greater Nashua as defined by New Hampshire Association of Realtors, and is used for comparison purposes.

Average residential sales prices State-wide have not increased to early 1990’s levels. Since 1994, modest increases (5.8%) were made. Sales prices in the Nashua area appear to have recovered from the recession in the early 1990’s, and increased by 10% between 1991 and 1998. Since 1994, a significant increase of 19.2% was made. Since 1991, the greatest increases in proportional change in sales prices were in Mont Vernon (59.0%), Litchfield (24.8%), and Milford (24.1%).

### TABLE XI – 15
**GREATER NASHUA HOME SALES REPORTS: 1990-1999**

<table>
<thead>
<tr>
<th>Period</th>
<th>New Listings</th>
<th>Avg. Current Listings</th>
<th>Sales Closed</th>
<th>Total Volume</th>
<th>Avg Selling Price</th>
<th>Days/Mrkt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>4,101</td>
<td>1,929</td>
<td>1,059</td>
<td>$160,012,721.00</td>
<td>$151,634.75</td>
<td>120</td>
</tr>
<tr>
<td>1991</td>
<td>3,842</td>
<td>1,857</td>
<td>1,460</td>
<td>$190,746,487.00</td>
<td>$132,134.25</td>
<td>118</td>
</tr>
<tr>
<td>1992</td>
<td>4,382</td>
<td>1,911</td>
<td>1,932</td>
<td>$228,222,180.00</td>
<td>$118,245.50</td>
<td>112</td>
</tr>
<tr>
<td>1993</td>
<td>4,547</td>
<td>1,883</td>
<td>2,180</td>
<td>$258,677,727.00</td>
<td>$118,396.00</td>
<td>106</td>
</tr>
<tr>
<td>1994</td>
<td>4,221</td>
<td>1,743</td>
<td>2,305</td>
<td>$273,165,087.00</td>
<td>$117,848.25</td>
<td>109</td>
</tr>
<tr>
<td>1995</td>
<td>2,448</td>
<td>879</td>
<td>2,047</td>
<td>$241,668,705.00</td>
<td>$117,872.50</td>
<td>152</td>
</tr>
<tr>
<td>1996</td>
<td>2,249</td>
<td>895</td>
<td>2,249</td>
<td>$279,037,322.00</td>
<td>$124,066.00</td>
<td>182</td>
</tr>
<tr>
<td>1997</td>
<td>2,844</td>
<td>999</td>
<td>2,606</td>
<td>$344,590,456.00</td>
<td>$130,804.25</td>
<td>183</td>
</tr>
<tr>
<td>1998</td>
<td>3,510</td>
<td>623</td>
<td>2,959</td>
<td>$416,733,186.00</td>
<td>$139,695.50</td>
<td>60</td>
</tr>
<tr>
<td>1999</td>
<td>3,919</td>
<td>598</td>
<td>2,785</td>
<td>$422,905,078.00</td>
<td>$151,851.02</td>
<td>53</td>
</tr>
</tbody>
</table>

Source: New Hampshire Association of Realtors

Table XI – 15 demonstrates the decline of average selling prices from the real estate boom of the 1980’s, and the steady rebound since 1994. The average length of time that homes were on the market increased by 72% between 1993
and 1997, but then fell dramatically in 1998 and dropped even further in 1999.

### TABLE XI - 16
NUMBER OF SALES BY PRICE/QUARTILES, 1998
by Municipality
Sample Size (projected actual number of sales)

<table>
<thead>
<tr>
<th>Municipality</th>
<th>1st Quartile less than $100,000</th>
<th>2nd Quartile $100,000 - $129,000</th>
<th>3rd Quartile $130,000 - $169,000</th>
<th>4th Quartile $170,000 +</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>1 (5)</td>
<td>11 (55)</td>
<td>18 (90)</td>
<td>56 (280)</td>
</tr>
<tr>
<td>Brookline</td>
<td>1 (5)</td>
<td>2 (10)</td>
<td>7 (35)</td>
<td>18 (90)</td>
</tr>
<tr>
<td>Hollis</td>
<td>4 (20)</td>
<td>1 (5)</td>
<td>1 (5)</td>
<td>30 (150)</td>
</tr>
<tr>
<td>Hudson</td>
<td>22 (110)</td>
<td>18 (90)</td>
<td>20 (100)</td>
<td>74 (370)</td>
</tr>
<tr>
<td>Litchfield</td>
<td>0</td>
<td>10 (50)</td>
<td>17 (85)</td>
<td>31 (155)</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Merrimack</td>
<td>45 (225)</td>
<td>29 (145)</td>
<td>23 (115)</td>
<td>118 (590)</td>
</tr>
<tr>
<td>Milford</td>
<td>13 (65)</td>
<td>14 (70)</td>
<td>15 (75)</td>
<td>50 (250)</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>0</td>
<td>0</td>
<td>2 (10)</td>
<td>6 (30)</td>
</tr>
<tr>
<td>Nashua</td>
<td>82 (410)</td>
<td>73 (365)</td>
<td>57 (285)</td>
<td>55 (275)</td>
</tr>
<tr>
<td>Pelham</td>
<td>0</td>
<td>6 (30)</td>
<td>1 (5)</td>
<td>12 (60)</td>
</tr>
<tr>
<td>Wilton</td>
<td>4 (20)</td>
<td>6 (30)</td>
<td>1 (5)</td>
<td>12 (60)</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>172 (860)</td>
<td>170 (850)</td>
<td>170 (850)</td>
<td>173 (865)</td>
</tr>
</tbody>
</table>

Source: NRPC based upon raw data from the NHAR, 1998.

Based upon a sample of every fifth single-family or condominium sale. NA indicates that data not available.

Based upon a sample of every fifth residential sale, total sales were projected and divided into four quartiles. Each of the quartiles contains one-fourth of all residential sales in the sample. The first quartile (or 25% of all sales) was less than $100,000. The second quartile was for sales between $100,000 and $129,000. The third ranged from $130,000 and $169,000. The highest quartile was for homes with sales prices that were greater than $170,000. Table XI - 16 shows the sample sizes used to calculate average sales prices for 1998.

### TABLE XI - 17
DISTRIBUTION OF SALES (AVERAGE/MEAN) BY PRICE RANGE/QUARTILES, 1998
by Community
Sample Size (projected actual number of sales)

<table>
<thead>
<tr>
<th>Municipality</th>
<th>1st Quartile less than $100,000</th>
<th>2nd Quartile $100,000 - $129,000</th>
<th>3rd Quartile $130,000 - $169,000</th>
<th>4th Quartile $170,000 +</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>1.2%</td>
<td>12.8%</td>
<td>20.9%</td>
<td>65.1%</td>
</tr>
<tr>
<td>Brookline</td>
<td>5.6%</td>
<td>11.1%</td>
<td>38.9%</td>
<td>44.4%</td>
</tr>
<tr>
<td>Hollis</td>
<td>13.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>80.0%</td>
</tr>
<tr>
<td>Hudson</td>
<td>29.7%</td>
<td>24.3%</td>
<td>27.0%</td>
<td>18.9%</td>
</tr>
<tr>
<td>Litchfield</td>
<td>0%</td>
<td>32.3%</td>
<td>54.8%</td>
<td>12.9%</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Merrimack</td>
<td>38.1%</td>
<td>24.6%</td>
<td>19.5%</td>
<td>17.8%</td>
</tr>
<tr>
<td>Milford</td>
<td>26.0%</td>
<td>28.0%</td>
<td>30.0%</td>
<td>16.0%</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>0%</td>
<td>0%</td>
<td>33.6%</td>
<td>66.7%</td>
</tr>
<tr>
<td>Nashua</td>
<td>30.7%</td>
<td>27.3%</td>
<td>21.3%</td>
<td>20.6%</td>
</tr>
<tr>
<td>Pelham</td>
<td>0%</td>
<td>26.1%</td>
<td>39.1%</td>
<td>34.8%</td>
</tr>
<tr>
<td>Wilton</td>
<td>33.3%</td>
<td>50.0%</td>
<td>8.3%</td>
<td>8.3%</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>25.1%</td>
<td>24.8%</td>
<td>24.8%</td>
<td>25.3%</td>
</tr>
</tbody>
</table>


Based upon a sample of every fifth single-family or condominium sale. NA indicates that data was not available.
Table XI - 17 indicates that the City of Nashua had the broadest range of housing options based upon sales prices (its sales are fairly evenly distributed between the four quartiles.) While Milford had fewer homes that sold within the highest quartile (16%), the range of housing prices in the other three quartiles were all approximately 30%. Several communities had sales that were disproportionately at the higher or lower end of the sales spectrum.

2. Nashua-specific Data

Nashua-specific sales and housing data for non-Census years has become fairly difficult to obtain, given the manner in which such data is collected. Most of the data available from the Greater Nashua Board of Realtors and the New Hampshire Association of Realtors is for the regional level. Nonetheless, some data that is specific to Nashua was obtained and is presented in Table XI - 18 below.

<table>
<thead>
<tr>
<th>Sale Price</th>
<th>Single-Family Residential</th>
<th>Condominiums</th>
<th>Multi-Family Units</th>
<th>Land</th>
<th>Mobile Homes</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; $50,000</td>
<td>11</td>
<td>31</td>
<td></td>
<td>9</td>
<td>22</td>
</tr>
<tr>
<td>$50k-$74,999</td>
<td>7</td>
<td>110</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>$75k-$99,999</td>
<td>22</td>
<td>95</td>
<td>20</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>$100k-$124,999</td>
<td>57</td>
<td>133</td>
<td>11</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>$125k-$149,999</td>
<td>165</td>
<td>150</td>
<td>37</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>$150k-$174,999</td>
<td>176</td>
<td>37</td>
<td>36</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>$175k-$199,999</td>
<td>108</td>
<td>22</td>
<td>11</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>$200k-$224,999</td>
<td>50</td>
<td>22</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>$225k-$249,999</td>
<td>39</td>
<td>22</td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>$250k-$274,999</td>
<td>19</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$275k-$299,999</td>
<td>22</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$300k-$324,999</td>
<td>13</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$325k-$599,999</td>
<td>42</td>
<td>9</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$600,000 &amp; &gt;</td>
<td>3</td>
<td></td>
<td></td>
<td>62</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total # of Sales</strong></td>
<td><strong>734</strong></td>
<td><strong>640</strong></td>
<td><strong>125</strong></td>
<td><strong>62</strong></td>
<td><strong>23</strong></td>
</tr>
</tbody>
</table>

Source: New Hampshire Board of Realtors

Table XI –18 indicates the type and price of real estate sold in Nashua in 2000. This table indicates that 86.7% of total real estate sales were either single-family residential (43.3%) or condominium (40.4%) sales. Single-family homes between $100,000 and $199,999 accounted for 40% of all real estate sales in 2000. Single-family homes and condominiums in this same range accounted for 53.5% of all real estate sales.

B. Single-family Homes and Condominiums

Table XI – 19 presents statistics for single-family homes for the region’s municipalities, and the overall region in 1999. The NRPC region had a similar proportion (60.4%) of single-family homes as the State (61%). In all but two
communities, Nashua and Milford, single-family homes constitute about 66% or more of the housing supply. At one time, these two communities contained the region's textile mills and associated housing, with areas of dense residential settlement. This is also true, to a certain extent, of parts of Hudson and Wilton. These areas supply the region with a significant portion of its affordable housing supply. In some of the more rural communities, manufactured units provide a significant proportion of affordable housing.

### TABLE XI - 19
PERCENT SINGLE-FAMILY UNITS, 1999
By MUNICIPALITY

<table>
<thead>
<tr>
<th>Community</th>
<th>Housing Units 1999</th>
<th>Single-family Units 1999</th>
<th>Percent Single-family 1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>3,861</td>
<td>3,487</td>
<td>90.3%</td>
</tr>
<tr>
<td>Brookline</td>
<td>1,359</td>
<td>1,266</td>
<td>93.2%</td>
</tr>
<tr>
<td>Hollis</td>
<td>2,546</td>
<td>2,281</td>
<td>89.6%</td>
</tr>
<tr>
<td>Hudson</td>
<td>8,114</td>
<td>5,363</td>
<td>66.1%</td>
</tr>
<tr>
<td>Litchfield</td>
<td>2,504</td>
<td>2,085</td>
<td>83.3%</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>590</td>
<td>518</td>
<td>87.8%</td>
</tr>
<tr>
<td>Merrimack</td>
<td>9,037</td>
<td>6,450</td>
<td>71.4%</td>
</tr>
<tr>
<td>Milford</td>
<td>5,338</td>
<td>2,715</td>
<td>50.9%</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>729</td>
<td>616</td>
<td>84.5%</td>
</tr>
<tr>
<td>Nashua</td>
<td>34,931</td>
<td>15,852</td>
<td>45.4%</td>
</tr>
<tr>
<td>Pelham</td>
<td>3,811</td>
<td>3,240</td>
<td>85.0%</td>
</tr>
<tr>
<td>Wilton</td>
<td>1,386</td>
<td>970</td>
<td>70.0%</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>72,066</td>
<td>42,956</td>
<td>60.4%</td>
</tr>
<tr>
<td>State of NH</td>
<td>554,074</td>
<td>337,727</td>
<td>61.0%</td>
</tr>
</tbody>
</table>


Single-family excludes Manufactured housing.

The condominium market expanded rapidly in the NRPC region during the decade of the 1980s. Since 1990, a total of 675 new units were constructed. This construction occurred in only three communities, and primarily in Nashua and Hudson. Additional condominium units have been permitted in Merrimack, but have not yet been built. In the course of research, it was discovered that 20% of all condominium units in the region are renter-occupied; this high value suggests that condominiums play a key role in the provision of rental housing within the regional housing market. The number of condominium units constructed since 1990 is shown in Table XI - 20.

### TABLE XI - 20
CONDOMINIUM UNITS CONSTRUCTED 1990-1998
BY MUNICIPALITY

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>10</td>
</tr>
<tr>
<td>Brookline</td>
<td>0</td>
</tr>
<tr>
<td>Hollis</td>
<td>0</td>
</tr>
<tr>
<td>Hudson</td>
<td>182</td>
</tr>
<tr>
<td>Litchfield</td>
<td>0</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>0</td>
</tr>
<tr>
<td>Merrimack</td>
<td>0</td>
</tr>
<tr>
<td>Milford</td>
<td>0</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>0</td>
</tr>
<tr>
<td>Nashua</td>
<td>483</td>
</tr>
<tr>
<td>Pelham</td>
<td>0</td>
</tr>
<tr>
<td>Wilton</td>
<td>0</td>
</tr>
</tbody>
</table>
### TABLE XI - 21

**CONDOMINIUM COMPLEXES WITH MORE THAN 25 UNITS, 1999**

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Total Units</th>
<th>% of Regional Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>139</td>
<td>1.5%</td>
</tr>
<tr>
<td>Brookline</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hollis</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hudson</td>
<td>941</td>
<td>9.9%</td>
</tr>
<tr>
<td>Litchfield</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Merrimack</td>
<td>2,050</td>
<td>21.5%</td>
</tr>
<tr>
<td>Milford</td>
<td>391</td>
<td>4.1%</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nashua</td>
<td>5,860</td>
<td>61.6%</td>
</tr>
<tr>
<td>Pelham</td>
<td>89</td>
<td>0.9%</td>
</tr>
<tr>
<td>Wilton</td>
<td>45</td>
<td>0.5%</td>
</tr>
<tr>
<td><strong>NRPC Region</strong></td>
<td><strong>9,515</strong></td>
<td>****</td>
</tr>
</tbody>
</table>

Source: NRPC Survey

Condominiums should be considered to be an affordable housing resource, particularly those located in large-scale developments. Table XI – 21 presents statistics on condominium units. The majority of condominiums in the region are located in the most populated, urbanized communities of Nashua, Hudson and Merrimack.

Table XI - 22 below lists the condominium complexes in Nashua that have more than 25 units. As seen in the data presented above, condominiums represent a significant portion of the City’s housing stock.

### TABLE XI - 22

**CONDOMINIUM COMPLEXES WITH MORE THAN 25 UNITS IN NASHUA**

<table>
<thead>
<tr>
<th>Town</th>
<th>Complex Name</th>
<th>Location</th>
<th>Total # Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nashua</td>
<td>Bluestone</td>
<td>Bluestone Drive</td>
<td>123</td>
</tr>
<tr>
<td>Nashua</td>
<td>Border Brook</td>
<td>Off Brook Village Road</td>
<td>119</td>
</tr>
<tr>
<td>Nashua</td>
<td>Brittany Place</td>
<td>Off Broad Street</td>
<td>54</td>
</tr>
<tr>
<td>Nashua</td>
<td>Cannongate</td>
<td>Off Amherst Street</td>
<td>242</td>
</tr>
<tr>
<td>Nashua</td>
<td>Candlewood</td>
<td>Candlewood Park</td>
<td>62</td>
</tr>
<tr>
<td>Nashua</td>
<td>Crestview</td>
<td>Amherst Street</td>
<td>45</td>
</tr>
<tr>
<td>Nashua</td>
<td>Country Hills</td>
<td>Piermont Drive</td>
<td>138</td>
</tr>
<tr>
<td>Nashua</td>
<td>Coburn Woods</td>
<td>Coburn Woods Drive</td>
<td>222</td>
</tr>
<tr>
<td>Nashua</td>
<td>Glen Abbey</td>
<td>Off Ferry Road</td>
<td>176</td>
</tr>
<tr>
<td>Nashua</td>
<td>Gingras Garden</td>
<td>Kingston Drive</td>
<td>56</td>
</tr>
<tr>
<td>Nashua</td>
<td>Greenwood</td>
<td>Autumn Leaf Drive</td>
<td>170</td>
</tr>
<tr>
<td>Nashua</td>
<td>Hollis Crossing</td>
<td>Off Broad Street</td>
<td>389</td>
</tr>
<tr>
<td>Nashua</td>
<td>Hollis Landing</td>
<td>Off West Hollis Street</td>
<td>51</td>
</tr>
<tr>
<td>Nashua</td>
<td>Holden Farms</td>
<td>Off Coburn Ave</td>
<td>130</td>
</tr>
<tr>
<td>Nashua</td>
<td>Hearthwood Meadows</td>
<td>Off Todd Road</td>
<td>48</td>
</tr>
</tbody>
</table>
Nashua Knightsbridge Off Amherst Street 420
Nashua Kessler Farms Sunapee Street 514
Nashua Killian Place Off Harris Road 51
Nashua Kensington Off West Hollis Street 64
Nashua Ledgewood Legedwood Hills Drive 377
Nashua Laurel Oaks Off Amherst Street 105
Nashua Louisburg Square Louisburg Square 109
Nashua Meadowview Off Middle Dunstable Road 187
Nashua Millstone Off Amherst Street 288
Nashua Oakhill Midhurst Avenue 253
Nashua Partidge Berry Strawberry Banke Road 285
Nashua Sundale Profile Circle 75
Nashua Sky Meadow Sky Meadow Drive 370
Nashua Thoreau’s Landing Lock Street 94
Nashua Timber Ridge Copperfield Drive 59
Nashua Ternbury Square Bole Brook Road 25
Nashua Villa Sapling Circle 91
Nashua Whitegate Off Bole Brook Road 54
Nashua Windsor Pond Off Hazel Avenue 60
Nashua Waterford Place Waterford Street 49
Nashua Westgate Village Westgate Crossing 162
Nashua Wyndwood Village Burgundy Drive 101

Source: NRPC, based on Nashua Planning Dept. research

Table XI - 23
TOTAL SALES OF SINGLE-FAMILY UNITS AND CONDOMINIUMS, 1998
BY MUNICIPALITY

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Single Family</th>
<th>Condominiums</th>
<th>Other Residential</th>
<th>Total Residential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>252</td>
<td>30</td>
<td>0</td>
<td>282</td>
</tr>
<tr>
<td>Brookline</td>
<td>98</td>
<td>6</td>
<td>4</td>
<td>108</td>
</tr>
<tr>
<td>Hollis</td>
<td>159</td>
<td>5</td>
<td>0</td>
<td>164</td>
</tr>
<tr>
<td>Hudson</td>
<td>262</td>
<td>151</td>
<td>0</td>
<td>413</td>
</tr>
<tr>
<td>Litchfield</td>
<td>163</td>
<td>0</td>
<td>0</td>
<td>163</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Merrimack</td>
<td>401</td>
<td>221</td>
<td>0</td>
<td>622</td>
</tr>
<tr>
<td>Milford</td>
<td>250</td>
<td>41</td>
<td>0</td>
<td>291</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>36</td>
<td>0</td>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td>Nashua</td>
<td>800</td>
<td>540</td>
<td>156</td>
<td>1,496</td>
</tr>
<tr>
<td>Pelham</td>
<td>132</td>
<td>0</td>
<td>0</td>
<td>132</td>
</tr>
<tr>
<td>Wilton</td>
<td>78</td>
<td>7</td>
<td>0</td>
<td>85</td>
</tr>
</tbody>
</table>

Source: New Hampshire Association of Realtors, 1998, as compiled by NRPC; N/A Indicates that data not available or sample size too small.

Table XI-23 breaks sales down by community and housing type for the year 1998. In Nashua, Merrimack and Hudson, condominium sales accounted for half of all residential sales during that year. When Nashua was broken down by “Central” and “Outer,” it is clear that the bulk of condominium sales are located outside of the central part of the City.

Table XI - 24
NASHUA CITY AND SUBAREAS, TOTAL SALES, 1998
SINGLE-FAMILY AND CONDOMINIUM

<table>
<thead>
<tr>
<th>Area</th>
<th>Single-family</th>
<th>Condominium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Central Nashua as defined for the purposes of this study to be generally bound by Greeley Park to the north; Everett Turnpike to the west; Merrimack River to the east; and the Nashua Country Club to the south. Outer Nashua is the portion of Nashua excluding Central Nashua.

TABLE XI - 25
NASHUA CITY AND SUB-AREAS: AVERAGE SALES PRICE for SINGLE-FAMILY AND CONDOMINIUM UNITS, 1998

<table>
<thead>
<tr>
<th>Area</th>
<th>Single Family</th>
<th>Condominium</th>
<th>Total Residential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nashua</td>
<td>$135,000</td>
<td>$95,000</td>
<td>$102,000</td>
</tr>
<tr>
<td>Central Nashua</td>
<td>$109,900</td>
<td>N/A</td>
<td>$107,000</td>
</tr>
<tr>
<td>Outer Nashua</td>
<td>$145,000</td>
<td>$95,000</td>
<td>$123,000</td>
</tr>
<tr>
<td>Greater Nashua</td>
<td>$165,047</td>
<td>$95,445</td>
<td>$140,836</td>
</tr>
<tr>
<td>State of NH</td>
<td>$147,741</td>
<td>$94,728</td>
<td>$118,084</td>
</tr>
</tbody>
</table>

The 1998 sales prices in Central Nashua were considerably lower than for the rest of the City and region. The central portion of Nashua provides a valuable source of affordable owner occupied housing for the region. Condominium sales prices were relatively consistent throughout the City, region and State.

C. The Distribution of Large, Sub-dividable Parcels in Nashua

The City of Nashua is very close to build-out. In other words, most of the land that is available for residential and other development will be developed over the course of the next decade or two, assuming a strong economic climate. As communities approach build-out, it is a common experience that the more desirable and easily developed land is built on first. Through a process of “builder selection,” land that is considered marginal for development is left alone until the scarcity of land is such that it becomes more economically valuable. Nashua is rapidly approaching this situation, and at current rates of development, most of the desirable land will be built on over the course of the next decade (2000 – 2010), with full build-out expected to occur in the following decade. The Planning Department estimates the potential for 1,000 – 1,400 additional dwelling units in the City by the time of build-out. Whether this occurs at the lower or higher end of the range depends on whether land is rezoned for higher density development in the years ahead. For example, as build-out approaches, land that is currently zoned for 40,000 square foot lots (R-40) in the southwest quadrant may experience pressure to be re-zoned to R-18, or even higher density.

The City’s recent acquisition of 292 acres in the southwest quadrant for recreation and conservation uses withdrew a fair amount of developable land from the market. Nevertheless, even without this land, the development of the remaining vacant parcels in the southwest quadrant alone could result in several hundred additional dwelling units. Table XI - 26 lists most of the remaining large (over 10 acres), developable tracts in Nashua. This list should not be considered a complete and comprehensive inventory of developable land in Nashua. It is recommended that such a
listing be developed in the near future, once the GIS system is tested and becomes available to the Planning Department.

In addition to the southwest quadrant, there are several large developable parcels in northwestern Nashua, in the vicinity of Coburn Avenue and Pine Hill Road, in particular. Smaller vacant lots suitable for “infill” development are scattered throughout all sections of the City. In most cases, infill development means one or two homes, but in several of the districts that permit multi-family dwellings (R-A, R-B, R-C), it may be possible to develop a greater number of units.

### TABLE XI – 26

<table>
<thead>
<tr>
<th>SHEET LOT #</th>
<th>SIZE (acres)</th>
<th>ZONING DISTRICT</th>
<th>STREET ADDRESS / LOCATION</th>
<th>COMMENTS</th>
<th>IF RESIDENTIAL, POTENTIAL # OF LOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - 44</td>
<td>16.5</td>
<td>PI</td>
<td>L. D.W. Highway</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A - 45</td>
<td>19</td>
<td>PI / R-40</td>
<td>L. Shelley Road</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A - 47</td>
<td>20.7</td>
<td>PI</td>
<td>L. Hill Street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A - 48</td>
<td>31.22</td>
<td>PI</td>
<td>L. Hill Street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A - 58</td>
<td>23.84</td>
<td>R-40</td>
<td>L. Long Hill Ave.</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>A - 67</td>
<td>10</td>
<td>R-40</td>
<td>L. Stetson Street</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>A - 92</td>
<td>15.14</td>
<td>PI</td>
<td>L. Shelley Road</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A - 712</td>
<td>4.3</td>
<td>PI / R-30</td>
<td>L. Tara Boulevard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A - 798</td>
<td>182.94</td>
<td>PI / R-18&amp;30</td>
<td>10 Spitbrook Road</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B - 20</td>
<td>29.8</td>
<td>R-18</td>
<td>55 Middle Dunstable Rd.</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>B - 24</td>
<td>29.5</td>
<td>R-18</td>
<td>L. East Dunstable Rd.</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>B - 26</td>
<td>43.1</td>
<td>R-18</td>
<td>L. Split Brook Road</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>B - 55</td>
<td>19.04</td>
<td>R-18</td>
<td>L. Ridge Road</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>B - 2300</td>
<td>31.97</td>
<td>R-18</td>
<td>L. Middle Dunstable Rd.</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>C - 11</td>
<td>11.38</td>
<td>R-40</td>
<td>14 Gregg Road</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>C - 25</td>
<td>27</td>
<td>R-40</td>
<td>44 Buckmeadow Road</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>C- 107</td>
<td>10.6</td>
<td>R-30</td>
<td>421 Middle Dunstable Rd.</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>C- 262</td>
<td>15.8</td>
<td>R-30</td>
<td>L. Middle Dunstable Rd.</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>C - 642</td>
<td>20.32</td>
<td>PI</td>
<td>L. Northeastern Boulevard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C - 2409</td>
<td>20</td>
<td>R-40</td>
<td>102 Ridge Road</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>C - 2410</td>
<td>36.43</td>
<td>R-40</td>
<td>L. Ridge Road</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>C - 2411</td>
<td>28.02</td>
<td>R-40</td>
<td>116 Ridge Road</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>D - 7</td>
<td>29.69</td>
<td>R-40</td>
<td>40 Groton Road</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>D - 21</td>
<td>44</td>
<td>R-30</td>
<td>L. Gilson Road</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>D - 23</td>
<td>71.84</td>
<td>R-40</td>
<td>35 Groton Road</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>D - 32</td>
<td>19.68</td>
<td>R-30</td>
<td>69 Gilson Road</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>D - 49</td>
<td>13.8</td>
<td>R-30</td>
<td>L. West Hollis Street</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>D - 68</td>
<td>20</td>
<td>R-9</td>
<td>1081 West Hollis Street</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>D - 336</td>
<td>54.32</td>
<td>R-40</td>
<td>15 Groton Road</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>D - 337</td>
<td>12</td>
<td>R-40</td>
<td>15 Groton Road</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>D - 388</td>
<td>10</td>
<td>R-40</td>
<td>L. Groton Road</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>E - 305</td>
<td>11.36</td>
<td>HB</td>
<td>238 Amherst Street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E - 1359</td>
<td>21.87</td>
<td>PI</td>
<td>L. West Hollis Street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E - 1424</td>
<td>14.23</td>
<td>PI</td>
<td>L. Simon Street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H - 10</td>
<td>31</td>
<td>R-30</td>
<td>L. Deerwood Drive</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>H - 11</td>
<td>43.8</td>
<td>R-30</td>
<td>L. Narrows Road</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>H - 12</td>
<td>13.51</td>
<td>R-30</td>
<td>L. Narrows Road</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>
### Table XI-26

<table>
<thead>
<tr>
<th>SHEET</th>
<th>LOT #</th>
<th>SIZE (acres)</th>
<th>ZONING DISTRICT</th>
<th>STREET ADDRESS / LOCATION</th>
<th>COMMENTS</th>
<th>IF RESIDENTIAL, POTENTIAL # OF LOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>F - 28</td>
<td>20.7</td>
<td>R-18</td>
<td>70 Coburn Avenue</td>
<td>&quot;Howe Orchards&quot;</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>F - 29</td>
<td>8.24</td>
<td>R-18</td>
<td>Coburn Avenue</td>
<td>&quot;Howe Orchards&quot;</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>F - 30</td>
<td>14.4</td>
<td>R-18</td>
<td>Coburn Avenue</td>
<td>&quot;Howe Orchards&quot;</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>F - 33</td>
<td>21</td>
<td>R-9</td>
<td>L. Pine Hill Road</td>
<td></td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>F - 39</td>
<td>28</td>
<td>R-30</td>
<td>L. Pine Hill Road</td>
<td></td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>F - 40</td>
<td>22.54</td>
<td>R-30</td>
<td>26 Pine Hill Road</td>
<td></td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>F - 41</td>
<td>12</td>
<td>R-30</td>
<td>L. Narrows Road</td>
<td></td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>G - 21</td>
<td>18.3</td>
<td>R-40</td>
<td>144 Tinker Road</td>
<td></td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>G - 87</td>
<td>17.19</td>
<td>AI</td>
<td>8 Cotton Road</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G - 554</td>
<td>12.02</td>
<td>PI</td>
<td>2315 Southwood Drive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G - 598</td>
<td>10.24</td>
<td>PI</td>
<td>2400 Southwood Drive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G - 599</td>
<td>10.65</td>
<td>PI</td>
<td>2300 Southwood Drive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I - 8</td>
<td>117.7</td>
<td>R-30</td>
<td>Farley Road</td>
<td>Extensive wetlands</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>47 - 355</td>
<td>10.09</td>
<td>R-A</td>
<td>L. Swart Terrace</td>
<td></td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>70 - 13</td>
<td>22.72</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTALS:** **1,380.77**

Notes: This table is based on research by Planning Department staff. An attempt was made to identify subdividable parcels greater than 10 acres using the City's Assessing Maps.

---

Table XI-26 indicates that it may be possible to build an additional 1,190 housing units (most of which would be single-family) in Nashua. This estimate was derived by applying a formula to the residentially zoned parcels. The total square footage of each lot was multiplied by .75 (the underlying assumption being that approximately 25% of any given lot is unbuildable land due to the presence of wetlands, steep slopes, and other physical constraints), and that number was, in turn, divided by the minimum required lot size. In some cases, this numerical approximation is likely to overestimate the number of possible lots; in other cases it is likely to underestimate, the number of possible lots, though perhaps not to as great a degree. As related in the Land Use Element, a build-out estimate based on Assessing Department records indicates that up to 1,472 additional units are possible in the City. The calculated number of possible future housing units derived from both methods is in the range derived through the “TAZ exercise” described in the Demographic Element. The underlying assumption of build-out studies is that landowners will always seek to maximize the number of units they can subdivide. The other key assumption is that all subdividable land will eventually be subdivided. Although this scenario may not come to pass, for planning purposes it is better to slightly overestimate the possible number of future homes, and the resultant population and number of school-aged children, than to underestimate the valued and not be prepared to provide services to that population.

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**IV. RENTAL HOUSING**

Nashua provides the majority (68%) of the rental housing in the region. As of the 1990 Census, nearly 43% of the housing units in the City were renter-occupied. Rental housing thus plays a very important role in the City, and fluctuations in vacancy rates and rental costs will affect a large segment of the City’s population. The following statistics for Nashua, the Nashua region, and the State illustrate trends in rental costs and the availability of rental housing.

Rent in the Nashua area has historically been higher than within the State of New Hampshire as a whole. Rents in the City of Nashua lagged behind those in the PMSA in 1991, but have since exceeded the median PMSA rent as indicated in the table below.
TABLE XI - 27
MEDIAN GROSS RENTAL COSTS
CITY, PMSA, AND STATE

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nashua PSMA</td>
<td>$664</td>
<td>$654</td>
<td>$703</td>
<td>$678</td>
<td>$637</td>
<td>$698</td>
<td>$729</td>
<td>$752</td>
<td>NA</td>
<td>$834</td>
</tr>
<tr>
<td>Nashua City</td>
<td>$620</td>
<td>$687</td>
<td>$717</td>
<td>$703</td>
<td>$633</td>
<td>$704</td>
<td>$737</td>
<td>$764</td>
<td>NA</td>
<td>$874</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>$554</td>
<td>$560</td>
<td>$564</td>
<td>$573</td>
<td>$563</td>
<td>$596</td>
<td>$606</td>
<td>$636</td>
<td>$665</td>
<td>$697</td>
</tr>
</tbody>
</table>

Source: NHHFA, as compiled by NRPC; Nashua PSMA includes all communities in the NRPC region, excluding Pelham, plus New Ipswich and Mason; gross rent includes utility costs.

Table XI-28 below shows that the rate of change in median gross rental costs between 1995 and 2000 increased at a slower rate in the PMSA (30.93%) and the State (23.80%) than for the City (38.07%). When the rate of change is examined between 1991 and 2000, the region’s percentage change (25.60%) is similar to the State’s (25.81%). During this same time period, the median gross rental costs for the City increased at a rate that was much higher (40.97%) than the Nashua PMSA.

TABLE XI - 28
MEDIAN GROSS RENTAL COSTS
CITY, PMSA, AND STATE

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nashua PSMA</td>
<td>$834</td>
<td>$637</td>
<td>$664</td>
<td>30.93%</td>
<td>25.6%</td>
</tr>
<tr>
<td>Nashua City</td>
<td>$874</td>
<td>$633</td>
<td>$620</td>
<td>38.07%</td>
<td>40.97%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>$697</td>
<td>$563</td>
<td>$554</td>
<td>23.80%</td>
<td>25.81%</td>
</tr>
</tbody>
</table>

Source: NHHFA, as compiled by NRPC

Table XI - 29 below provides the 2000 median monthly gross rental costs and rent range for 0 – 4 bedroom units in the greater Nashua area. The median monthly gross rental cost for all types of apartments was $874 in 2000.

TABLE XI - 29
MEDIAN MONTHLY GROSS RENTAL COST, 2000
GREATER NASHUA

<table>
<thead>
<tr>
<th>BEDROOMS</th>
<th>SAMPLE SIZE</th>
<th>MEDIAN RENT</th>
<th>RENT RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>35</td>
<td>$585</td>
<td>$381 - $727</td>
</tr>
<tr>
<td>1</td>
<td>415</td>
<td>$769</td>
<td>$375 - $1,062</td>
</tr>
<tr>
<td>2</td>
<td>868</td>
<td>$896</td>
<td>$471 - $1,667</td>
</tr>
<tr>
<td>3</td>
<td>193</td>
<td>$1,023</td>
<td>$592 - $1,579</td>
</tr>
<tr>
<td>4+</td>
<td>11</td>
<td>***</td>
<td>$993 - $1,083</td>
</tr>
<tr>
<td>All</td>
<td>1,522</td>
<td>$874</td>
<td>$375 - $1,667</td>
</tr>
</tbody>
</table>

Source: New Hampshire Housing Finance Authority

TABLE XI - 30
AVERAGE RENTAL COST FOR TWO-BEDROOM UNIT,
GREATER NASHUA, 1990-2000
As seen in Table XI – 30 above, the average cost of a two-bedroom rental apartment in greater Nashua rose 29% between 1990 and 2000, from $695 to $896. As mentioned earlier, although Nashua contains 10% of all rental units in the State, the demand is so high that it is difficult to find a rental unit, and consequently prices are higher than those of the region, county, and State. This demand is reflected in the dramatic drop in rental vacancy rates between 1990 and 1998. In 1990, during the recession, the rental vacancy rate in Nashua was 17.1%; in 1998, however, after several years of economic recovery, it was .4%. Although data is not available for 1999, the vacancy rate is expected to remain under 1%. Recent trends in vacancy rates are discussed on the next page.

Table XI - 31 indicates the extent to which the demand for rental housing has increased in the City of Nashua, the metropolitan area, and at the State level. The years 1990 and 1991, which were at the peak of the recessionary period, showed extremely high vacancy rates of 17.1% in the City, 12.4% in the metropolitan area, and 12.0% Statewide. Since 1994, vacancy rates have dropped dramatically. Currently, in 1998, the rental vacancy rate is less than half a percent in both the City and in the PMSA, compared with 2.3% Statewide. This is indicative of a very tight rental market, which has been reflected in the steady increase of rents in the City and Region.

### TABLE XI - 31
RENTAL VACANCY RATES, CITY, PMSA & STATE

<table>
<thead>
<tr>
<th>Year</th>
<th>City of Nashua</th>
<th>Nashua PMSA</th>
<th>State of NH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>17.1%</td>
<td>12.4%</td>
<td>8.7%</td>
</tr>
<tr>
<td>1991</td>
<td>10.1%</td>
<td>8.7%</td>
<td>12.0%</td>
</tr>
<tr>
<td>1992</td>
<td>5.3%</td>
<td>5.8%</td>
<td>7.8%</td>
</tr>
<tr>
<td>1993</td>
<td>2.7%</td>
<td>3.9%</td>
<td>5.4%</td>
</tr>
<tr>
<td>1994</td>
<td>4.2%</td>
<td>3.8%</td>
<td>4.6%</td>
</tr>
<tr>
<td>1995</td>
<td>1.6%</td>
<td>1.8%</td>
<td>3.2%</td>
</tr>
<tr>
<td>1996</td>
<td>0.5%</td>
<td>0.5%</td>
<td>1.4%</td>
</tr>
<tr>
<td>1997</td>
<td>0.9%</td>
<td>0.9%</td>
<td>2.1%</td>
</tr>
<tr>
<td>1998</td>
<td>0.4%</td>
<td>0.5%</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

Source: NRPC research

### TABLE XI - 32
APARTMENT BUILDINGS WITH MORE THAN 25 UNITS

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Number of Complexes</th>
<th>Number of Units</th>
<th>Percent of regional Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hudson</td>
<td>2</td>
<td>190</td>
<td>5.6%</td>
</tr>
<tr>
<td>Merrimack</td>
<td>1</td>
<td>104</td>
<td>3.1%</td>
</tr>
<tr>
<td>Milford</td>
<td>7</td>
<td>NA*</td>
<td>18.9%</td>
</tr>
<tr>
<td>Nashua</td>
<td>23</td>
<td>2,400+</td>
<td>71 + %</td>
</tr>
</tbody>
</table>

Source: New Hampshire Housing Finance Authority
Only five communities in the region have apartment complexes with more than 25 units. These units are tallied in Table XI – 32. Within these communities, the majority of apartment complexes are located within the centers of Nashua and Milford. As stated previously, these two communities provide the vast majority of rental and affordable housing within the region.

MAP XI - 1

Click to return to the top of the Housing Element

V. ASSISTED HOUSING

More than half of all assisted housing in the region is located in the City of Nashua. A significant portion is also
located within the center of Milford. Four communities within the NRPC region have no assisted housing. As seen in Table XI-33 below, most assisted units are for elderly housing.

### TABLE XI - 33

**ASSISTED HOUSING AS OF 1997**

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Elderly Assisted</th>
<th>Family Assisted</th>
<th>Other Assisted or Combined Types</th>
<th>Total Assisted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Brookline</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hollis</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td>Hudson</td>
<td>64</td>
<td>0</td>
<td>0</td>
<td>64</td>
</tr>
<tr>
<td>Litchfield</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Merrimack</td>
<td>80</td>
<td>0</td>
<td>0</td>
<td>80</td>
</tr>
<tr>
<td>Milford</td>
<td>139</td>
<td>56</td>
<td>6</td>
<td>201</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nashua</td>
<td>646</td>
<td>290</td>
<td>836</td>
<td>1,774</td>
</tr>
<tr>
<td>Pelham</td>
<td>48</td>
<td>0</td>
<td>0</td>
<td>48</td>
</tr>
<tr>
<td>Wilton</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>33</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>1,074</td>
<td>346</td>
<td>842</td>
<td>2,264</td>
</tr>
<tr>
<td>State of NH</td>
<td>8,485</td>
<td>3,514</td>
<td>4,868</td>
<td>16,877</td>
</tr>
</tbody>
</table>

Source: NHHFA, Directory of Assisted Housing, 1997, as compiled by NRPC; “Other Assisted or Combined” category includes group homes, housing for the mentally or physically handicapped, and developments containing both elderly and family housing.

### TABLE XI - 34

**ASSISTED HOUSING, 1997/PROPORTIONAL BURDEN**

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Total Housing Units, 1997</th>
<th>Percent Assisted Units</th>
<th>(Shortfall)/Excess</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>3,679</td>
<td>0%</td>
<td>(114)</td>
</tr>
<tr>
<td>Brookline</td>
<td>1,274</td>
<td>0%</td>
<td>(39)</td>
</tr>
<tr>
<td>Hollis</td>
<td>2,441</td>
<td>1.0%</td>
<td>(52)</td>
</tr>
<tr>
<td>Hudson</td>
<td>7,735</td>
<td>0.8%</td>
<td>(176)</td>
</tr>
<tr>
<td>Litchfield</td>
<td>2,319</td>
<td>1.7%</td>
<td>(32)</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>568</td>
<td>0%</td>
<td>(18)</td>
</tr>
<tr>
<td>Merrimack</td>
<td>8,672</td>
<td>0.9%</td>
<td>(188)</td>
</tr>
<tr>
<td>Milford</td>
<td>5,196</td>
<td>3.9%</td>
<td>40</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>696</td>
<td>0%</td>
<td>(22)</td>
</tr>
<tr>
<td>Nashua</td>
<td>34,522</td>
<td>5.1%</td>
<td>704</td>
</tr>
<tr>
<td>Pelham</td>
<td>3,632</td>
<td>1.3%</td>
<td>(64)</td>
</tr>
<tr>
<td>Wilton</td>
<td>1,345</td>
<td>2.5%</td>
<td>(9)</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>72,079</td>
<td>3.1%</td>
<td>**</td>
</tr>
<tr>
<td>State of NH</td>
<td>540,080</td>
<td>3.1%</td>
<td>**</td>
</tr>
</tbody>
</table>

Source: NHHFA, Directory of Assisted Housing, 1997; US Census; NRPC.

The regional average (mean) of housing units that are assisted is 3.1%. This is comparable to the State average. Only two communities in the region, Milford and Nashua, exceed the regional/State average. This again demonstrates the extent to which these two municipalities function as an affordable housing resource for the entire region.
Section 8 Certificates and Vouchers

Section 8 Certificates and Vouchers are administered through local housing authorities. In the NRPC region, the Nashua Housing Authority is the sole administering authority for this program. Certificate and vouchers are granted to income-eligible families. The voucher enables the household to utilize private market housing. There is an upper level rent limit that the voucher will pay for, and the family is required to pay 30% of their income toward the program. The family can then use the certificate to find housing wherever it chooses or can find it. The Nashua Housing Authority administers 608 certificates and vouchers. Of those 608, all but 18 are being utilized in the City of Nashua. Conversely, 180 certificates and vouchers from other housing authorities are being used in Nashua.

The Nashua Housing Authority reports that as of February 1, 2001, it had 741 families on its Public Housing waiting list, and 874 on the waiting list to receive certificates and vouchers. This demonstrates that the availability of public housing and housing assistance for low- and moderate-income families is critical and chronic. The 657-family waiting list for public housing translates into a four- to five-year waiting period; for senior citizens, the wait may be as long as five to seven years. Likewise, according to the Milford Welfare Office, there is a four-year wait for Section 8 rental assistance in that town.

VI. Existing and Future Housing Needs

A. Regional Housing Needs Assessment: Existing Housing Needs

The major purpose of the Regional Housing Needs Assessment (RHNA) is to determine the existing and future housing needs of all levels of income for each of the region’s communities and for the region as a whole. To develop a needs assessment, some estimate of the total regional need for housing, expressed as a numeric value, is necessary. A similar estimate is needed for each community. Since it is assumed that middle- and upper-income households in the region can obtain adequate market rate housing, “housing need” is considered to be limited to low- and very low-income households, and those households with special housing needs.

Low-income households are generally defined as households with annual incomes below 80% of the median household income for a specified geographic area. Very low-income households are those that earn less than 50% of the median. In 1998, according to the US Census, the median family income in the Nashua PMSA was $59,600 (Income data is available only at the metropolitan area and county levels for non-decennial census years). Low-income households earned between $29,800 and $47,680. Very low-income households earned less than $29,800. In 1990, the median family income was $46,786. Median family income increased by 27.4% over the eight-year period, a significantly higher increase than the rate of inflation.

It should be noted that income data, which is key to determining need, is available at the municipal level only through the decennial US Census. Therefore, absent a scientifically valid survey, the best available data at the municipal level is from the 1990 Census. The 1994 Regional Housing Needs Assessment evaluated need for each municipality in the region, based upon data supplied through the 1990 Census. The 1994 assessment attempted to quantify the specific number of housing units needed to meet the housing need of each income category, by community. Since it is not possible to replicate these findings with any degree of accuracy until the results of the 2000 Census are available, the results of the 1990 analysis are provided here. This data, at this point in time, should be evaluated in conjunction with the more recent data available in this report.

<table>
<thead>
<tr>
<th>TABLE XI - 35</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUMBER OF RENTAL UNITS NEEDED FOR EACH INCOME GROUP, 1990</td>
</tr>
<tr>
<td>By Municipality</td>
</tr>
</tbody>
</table>

(Surplus or deficiency, based upon the number of households within income levels in each town,
As Table XI-35 demonstrates, for those earning less than 22% of the regional median in 1990, there was a deficit of rental housing that would be affordable to that income level in each community. For those who earned between 22% and 76% of median family income, however, there was a surplus of affordable units in each community. Overall, each community had a surplus of units for all persons considered to be low- and very low-income at that time.

The extent to which this is true today is uncertain. Although sales and building permit data show that the demand for housing is high, there is no hard evidence to suggest that the demand for low- and very low-income housing has increased significantly. Statistics from the Nashua Housing Authority suggest that although waiting lists for affordable housing are high, they are significantly lower than in 1990. This is probably because the regional median family income has increased by about 25% since 1990, a rate that far exceeded the national rate of 5.1% (35,255 in 1990 vs. 37,005 in 1997). The overall impression this leaves is that the economy has improved the economic status of lower income households.

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B. Regional Housing Needs Assessment: Future Housing Needs

The two tables below show projections in population growth and for various income groups. These tables are based on extrapolations of existing data and generally show similar trends that were indicated through permit and sales data discussed earlier in this document. As 2000 Census data becomes available this information should be updated.
### TABLE XI - 37

<table>
<thead>
<tr>
<th>Income Groups</th>
<th>Total Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>(&lt;22%)</td>
<td>51,381</td>
</tr>
<tr>
<td>(22% to 44%)</td>
<td>66,541</td>
</tr>
<tr>
<td>(44% to 76%)</td>
<td>23,057</td>
</tr>
<tr>
<td>(&gt;76%)</td>
<td>4,400</td>
</tr>
</tbody>
</table>

### TABLE XI - 38

<table>
<thead>
<tr>
<th>POPULATION AGE 65 AND OVER, 1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>By MUNICIPALITY</td>
</tr>
<tr>
<td>MUNICITY</td>
</tr>
<tr>
<td>Amherst</td>
</tr>
<tr>
<td>Brookline</td>
</tr>
<tr>
<td>Hollis</td>
</tr>
<tr>
<td>Hudson</td>
</tr>
<tr>
<td>Litchfield</td>
</tr>
<tr>
<td>Lyndeborough</td>
</tr>
<tr>
<td>Merrimack</td>
</tr>
<tr>
<td>Milford</td>
</tr>
<tr>
<td>Mont Vernon</td>
</tr>
<tr>
<td>Nashua</td>
</tr>
<tr>
<td>Pelham</td>
</tr>
<tr>
<td>Wilton</td>
</tr>
<tr>
<td>NRPC Region</td>
</tr>
<tr>
<td>State of NH</td>
</tr>
</tbody>
</table>

Source: US Census, 1990, as compiled by NRPC.

### C. Regional Housing Needs Assessment: Special Housing Needs

In addition to evaluation of housing needs based on income, many families and individuals have special housing needs, which are often based on physical conditions such as age or disability. Often, needs that are based on such physical conditions are complicated by affordability issues, as well. Table XI - 38, below depicts the number of elderly individuals in each of the region's communities. Table XI – 39 presents the number of disabled individuals by community. Although neither table provides an absolute measure of housing need, both can be used to inform decisions related to housing opportunity.
## TABLE XI - 39
PERSONS WITH DISABILITIES, NRPC REGION, 1990

<table>
<thead>
<tr>
<th>MUNICIPALITY</th>
<th>Persons 16-64 with a work disability</th>
<th>Persons 16-64 with a mobility or self-care limitation</th>
<th>Persons 65+ with a mobility or self-care limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amherst</td>
<td>262</td>
<td>114</td>
<td>71</td>
</tr>
<tr>
<td>Brookline</td>
<td>68</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>Hollis</td>
<td>124</td>
<td>40</td>
<td>55</td>
</tr>
<tr>
<td>Hudson</td>
<td>812</td>
<td>363</td>
<td>195</td>
</tr>
<tr>
<td>Litchfield</td>
<td>130</td>
<td>111</td>
<td>20</td>
</tr>
<tr>
<td>Lyndeborough</td>
<td>76</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>Merrimack</td>
<td>782</td>
<td>339</td>
<td>118</td>
</tr>
<tr>
<td>Milford</td>
<td>542</td>
<td>195</td>
<td>108</td>
</tr>
<tr>
<td>Mont Vernon</td>
<td>53</td>
<td>24</td>
<td>39</td>
</tr>
<tr>
<td>Nashua</td>
<td>3,914</td>
<td>1,471</td>
<td>1,518</td>
</tr>
<tr>
<td>Pelham</td>
<td>363</td>
<td>164</td>
<td>83</td>
</tr>
<tr>
<td>Wilton</td>
<td>241</td>
<td>96</td>
<td>57</td>
</tr>
<tr>
<td>NRPC Region</td>
<td>7,367</td>
<td>2,949</td>
<td>2,298</td>
</tr>
<tr>
<td>State of NH</td>
<td>26,825</td>
<td>20,035</td>
<td>19,675</td>
</tr>
</tbody>
</table>

Source: US Census STF3A, Table P66 & P69.

---

### D. Strategies for Meeting Local Housing Needs as Presented in the Regional Housing Needs Assessment

The region's housing needs are broad and encompass a range of income groups and family types. Several methods for meeting these diverse housing needs are described in the following section, and include incentives that can be provided through innovative local land use regulation, as well as various State and federal government programs. Each community should assess its own housing needs within the context of local conditions.

#### 1. Community Character

It is critical to balance the need for affordable housing with the desire to maintain community character. Community character should never be sacrificed to achieve affordable housing goals. There are several simple principles that should be considered and applied when a municipality, particularly a rural one, is planning for affordable housing:

- The affordable housing that is provided should never out-scale the other structures near it. If the typical structure in a village is two stories and 4,000 square feet, the affordable housing should be of a similar size.

- Affordable housing should blend with other housing in its vicinity. The affordable housing should not be constructed of different materials than that which is typically found nearby. Affordable housing that does not blend in with its surroundings can stigmatize the project.

Affordable housing, particularly for very low-income individuals and the elderly, should be located within walking distance of services. Individuals without automobiles will be isolated in poorly sited affordable housing developments. Rather, such housing should be located close to stores and medical services.
2. Inclusionary Housing

Inclusionary housing programs are intended to encourage private developers to provide housing for moderate-, low- and very low-income households in exchange for density bonuses or zoning changes. Generally, a residential developer seeking a higher density than what is normally allowed under the zoning ordinance is required to set aside a certain percentage of the units for lower-income households. Many inclusionary housing programs also require a certain percentage of the units to be designated for elderly or handicapped households. Depending on the ordinance, developers interested in applying for a density bonus or zone change apply either to the local zoning board of adjustment or to the planning board. Most inclusionary housing programs are voluntary and apply only where the municipality attempts to use zoning as an incentive to provide for a recognized need within the community. The developer receives an incentive, usually increased density, which provides the impetus for developing the desired housing type. The percentage of units that must be set aside for target groups varies based on the local ordinance. Massachusetts’ ordinances range between a requirement of 5% to 40%, depending on the municipality and type of housing provided.

In general, most ordinances require the below market rate units to be provided within the site. The units may be smaller than market rate and may lack some amenities, but may not be recognizably different from the other units in the development. Some ordinances allow below market rate units to be clustered within a portion of the development. Other ordinances encourage the below market rate units to be distributed throughout the complex.

Because most ordinances require below market rate units to be provided on-site, the maintenance, management and marketing of the units remains a private responsibility. Local ordinances usually include a provision requiring that below market units, whether rental or owner-occupied, remain at below market levels for a fixed period of time. The time period can vary from 10 to 99 years. Municipalities, however, must assume the responsibility of ensuring that below market units remain at target levels. This is particularly difficult for below market rate, owner-occupied housing since the resale of the property must be regulated to ensure that a lower or moderate-income family can purchase the unit while allowing the seller to capture some equity from the property. In most cases, the monitoring of inclusionary housing programs is the responsibility of a local housing authority, community development department, or planning department.

The greatest constraint to implementing an inclusionary housing program in the region's municipalities is the difficulty of administering such a program. Although market studies have been done which indicate that developments with below-market rate units do not suffer from lowered real estate values, public perception is difficult to overcome. Another barrier is the difficulty of amending zoning ordinances to allow for the flexibility to provide for density bonuses in many municipalities. The greatest advantages to inclusionary housing programs is that the below market rate units are generally built, managed, and maintained by private developers. The municipality avoids having to maintain an inventory of housing to manage, as well as the difficult process of locating sites and building needed housing.

By including a small number of moderate- and low-income units within a mix of market rate units, the community avoids the problems associated with over-concentration of affordable housing. The families that occupy the units are integrated with the greater community, and provided with the same level of maintenance and public facilities and services as the general population. Furthermore, programs that also encourage the provision of elderly and handicapped housing, as well as three-bedroom rental units, allow for an even greater integration of household types. In this way, the housing needs of most family types, including various age and income groups, can be accommodated within a single residential development with only minimal public sector involvement.

3. Cluster Housing

The 1994 Regional Housing Needs Assessment considered clustered housing as an affordable housing mechanism. In a cluster development, the individual house lot or private yard area dedicated to each unit is usually smaller than those found in conventional developments, while the overall density is usually the same or even higher. Densities are calculated by considering the total land area of the development, including common areas, in relation to the total number of units, rather than considering only the amount of land dedicated to each individual unit. Often, cluster development is provided for under ordinances using terms such as Planned Residential Development or Planned Unit Development.
However, there is no evidence to suggest that clustered housing provisions result in the creation of affordable housing. To the contrary, there have been a number of high-end developments that have utilized the configuration. Cluster housing is a planning technique that should be utilized for the purpose of preserving open space associated with subdivisions. In terms of affordable housing, it is neutral. Depending upon the densities associated with the development, and its location, the result may or may not yield affordable housing units.

4. Elderly Housing Districts

The elderly housing district is a technique that are increasingly being used by communities to address the need for specialized housing for the elderly without allowing for general multi-family housing or overall increases in density. These districts usually take the form of overlay zones and function in a way that is similar to cluster ordinances. In a few communities, actual parcels of land have been zoned for elderly housing. In most cases, elderly housing ordinances provide for a far higher density than would be allowed in the underlying zone, and contain a separate set of regulations and restrictions than those found in other zones. Some ordinances contain provisions for subsidized housing, while others do not. Five communities in the NRPC region, Nashua, Merrimack, Milford, Hudson and Pelham, have some type of elderly housing zone.

5. Accessory Housing

An accessory housing unit is generally defined as a small additional housing unit located within what is otherwise considered a single-family home. Accessory apartments are increasingly allowed in traditional single-family zoning districts as a means of providing inexpensive housing, usually for older or younger single relatives of the resident of the home, in high priced housing areas. Because such units are frequently intended for related individuals, they are sometimes known as "in-law apartments" or "granny flats." The latter term is used because elderly relations are the most common occupants of such units. Although such units are usually apartments within a single-family home, the conversion of other buildings or the construction of a small detached home on the same lot is sometimes allowed. Zoning ordinances allowing for accessory housing usually include a number of restrictions on their development.

Municipalities that allow for accessory housing can do so by right in certain zones, in all residential zones, or by special exception. Generally, provisions for such units must meet a maximum square footage requirement to discourage more than one resident in the unit, and are often not allowed to have a separate entrance, or must have an entrance to the side or rear. Frequently, separate mailboxes and addresses are not permitted. These restrictions are usually intended to maintain the character of the area as a single-family neighborhood. Although accessory dwelling units are usually apartments within a single-family home, the conversion of other buildings or the construction of a small detached home on the same lot is sometimes allowed. Zoning ordinances allowing for accessory housing usually include a number of restrictions on their development.

Accessory dwelling units offer a housing alternative to serve a wide range of needs. For the elderly, an accessory apartment can allow the individual to maintain a degree of independence while still receiving the support of family members. The same is true for younger family members. Where student housing is scarce, accessory dwelling units can provide a housing alternative within a family setting. For older or younger homeowners, the modest rent that may be received for such a unit may make home ownership a possibility that would otherwise not exist. Provisions that restrict the size of the unit, its entrance, and other features keep the unit from being rented as a traditional apartment, thus maintaining the single-family character of the area. Furthermore, because such units are usually not separated from the principal residence, they can readily be reincorporated into the main dwelling.

Nashua recently adopted an Accessory Dwelling Unit ordinance which allows such units as an accessory use of a single-family home by special exception. Accessory dwelling units can take up no more than 30% of the gross floor area of the primary structure, up to a maximum of 700 square feet.

6. Group Homes

Group homes are an important means of providing housing for the elderly and special needs groups such as de-institutionalized individuals, the homeless, handicapped individuals and other special needs groups. Generally, a group
home is a single-family home housing several unrelated individuals with common needs. This allows for mutual support for people of common needs within a family-type setting. The homes provide individual or shared bedrooms with common living areas.

A provision for group homes usually requires a community to amend its zoning ordinance to provide a definition of "family" that would allow for a group home to be placed in a single-family area. Because group homes are not subdivided, they are considered to be multi-family housing. A typical ordinance may provide a definition, for example, that would allow ten unrelated elderly, handicapped or de-institutionalized individuals to be considered a family for zoning purposes, provided the home is not subdivided and the individuals live together as a single housekeeping unit. An alternative way to provide for group homes would be under a special exception provision.

The largest impediment to providing for group homes is neighborhood resistance. Individuals that purchase homes in single-family areas have an expectation that the neighborhood will be maintained with a certain character. While a house that is purchased for a small group of older residents may pose little threat to neighbors, a home for de-institutionalized mental health patients or ex-convicts may well create further cause for alarm. Great care must be provided to avoid disruption of existing neighborhoods. Regulations that may mitigate some of the potential negative impacts associated with the group homes in single-family areas would be similar to those found in ordinances governing home-occupations and accessory housing. The intent should be to provide restrictions related to parking, entrances, and the appearance of the home to maintain the single-family character of the area.

7. Manufactured Housing

Manufactured housing is a relatively new term that includes what are traditionally known as trailers or mobile homes, as defined in RSA 674:31. Although State legislation has been adopted that requires all municipalities to provide for significant opportunities for the location of manufactured housing, many communities still severely restrict such housing. This is often due to aesthetic considerations, as well as the association of such housing with lower-income groups. In general, manufactured housing is situated either in higher-density parks, on individual lots or in manufactured housing subdivisions. State law requires that each community provide for two of the three alternatives in most, but necessarily all, of the community.

Manufactured housing parks can provide an important housing alternative for low- and moderate-income groups. The purchase price is relatively low for individuals because the lots in the park must be rented. As a result, many residents in manufactured housing parks face eviction if the land is sold. The lack of new manufactured housing parks makes relocation nearly impossible unless the family can afford to purchase a lot. Mobile homes on individual lots or within subdivisions provide only a limited form of affordable housing due to the very high land costs within the region. Although a manufactured home on an individual lot may be only 10% less expensive than a conventional home on a similar lot, this can make the difference in affordability for many moderate- and middle-income families.

8. State and Federal Government Programs

Within the State of New Hampshire, most federal and State housing programs are administered through the New Hampshire Housing Finance Authority (NHHFA). The NHHFA programs are described below. In addition to these programs, Veterans Administration (VA) and Federal Housing Administration (FHA) loans are available through those agencies.

9. Locally Administered Programs

a. Public Housing

The Nashua Housing Authority (NHA) manages a total of 662 assisted housing units in Nashua. 253 of these units are apartments for families, and 409 are elderly housing units. Most of the family and elderly housing units are located within thirteen apartment complexes, but there are 43 family units at scattered sites throughout the City. Of the total assisted units, 32 are handicapped units. Thirty percent of a family’s or individual’s adjusted income is allocated for housing costs at these assisted units. According to the Nashua Housing Authority, the majority of these units are rented by the “working poor.” These individuals and families may work full-time, but the low wages they receive don’t
allow them to afford market rate rental housing. The federal Housing and Urban Development (HUD) subsidy covers 70% of the rental cost, with the remainder coming from the individuals and families.

The Nashua Housing Authority also administers the Section 8 program. This program provides rental subsidies at 608 units throughout the City. The Nashua Housing Authority is concerned about the recent rapid increase in market rate rents, since they can only pay a fixed amount towards the subsidy. The NHA is empowered to negotiate rents with landlords for their clients, but when rents are high there is less incentive for landlords to participate in the Section 8 program.

b. Non-Profit Housing: Southern NH Services, NHSGN, etc.

The City of Nashua’s Urban Programs Department administers several housing-related programs. The majority of these programs are federally funded through the Community Development Block Grant (CDBG) program. The City of Nashua is a CDBG entitlement community. CDBG eligible areas within Nashua are shown on Map XI-2. The CDBG programs administered by the Urban Programs Department include:

- Housing Improvement Program (for single-family homes)
- Housing Improvement Program (for multi-family homes)
- Opportunity Acquisition Program
- Lead Abatement and Controls Program
- HOME Investment Partnerships Program

The Housing Improvement Program (HIP) for single- and multi-family homes benefits owner-occupants, and is targeted to low-income residents (those earning less than 60% of the median area income). The program allows owners to undertake needed repairs and renovations to improve the quality of housing. The program benefits owner-occupants of 1 – 4 unit structures with an interest-free mortgage, for which payment of the principal is due upon transfer. In Nashua, this program has been used in the Tree Streets, French Hill, and Crown Hill neighborhoods, and to a limited extent for projects of an emergency nature throughout the City.

The Opportunity Acquisition Program allows the City to purchase sub-standard housing for rehabilitation or demolition. Structures are demolished only when the cost of repairing them is excessive. The site can either be redeveloped with new housing or used for “density reduction” in densely-populated neighborhoods by using the lot for open space that is developed into parking or “pocket parks.”

The Lead Abatement and Control Program is targeted to families at or below 80% of the median area income (MAI), with the aim of reducing lead hazards found in the home (i.e. lead paint). In 1998, 57 units were targeted for lead reduction through this program.

The City of Nashua is a HOME Program suballocant through the New Hampshire Housing Finance Authority. The HOME Program provides subsidies for rental housing development targeted to families at or below 60% of MAI. HOME funds make up the gap between available conventional financing and the amount needed to finance a rental housing development, based on a project’s projected cash flow and the cost of development.
It can generally be stated that most middle- and upper-income households have the resources to both locate and afford suitable housing, whether it is owner-occupied or rental housing. The tight housing market may require these households to search outside of Nashua for housing, but most middle- and upper-income households have the resources to locate housing in the greater Nashua area. On the other hand, the tight housing market, combined with a rental vacancy rate approaching zero percent, is likely making it very difficult for many moderate-, low-, and very low-income households to find suitable and affordable housing.

Anecdotal evidence from the Community Services Division, Housing Code Enforcement, and the Nashua Housing Authority indicates that many low-income families are “doubling up” in apartments and multi-family dwellings. For many families, this appears to be the only alternative to homelessness. The 2000 Census will help to clarify the housing need situation of moderate-, low-, and very low-income renters in Nashua. Until then, the best available data is contained in this Housing Element. There has been comparatively little construction of multi-family housing units in the Nashua region in the 1990’s, as compared to the 1980’s. Most non-single-family units constructed in the 1990’s were either duplexes or elderly housing units. Economic conditions are such that developers don’t have the incentive to build multi-family dwellings or apartment complexes. This relative scarcity of new multi-family housing exacerbates the housing situation for renters at all income levels. This decrease in multi-family housing starts is being experienced State-wide. An article in the February 2000 issue of Economic Conditions in New Hampshire, published by the New Hampshire Department of Employment Security, states that:

“There appears to be an on-going trend in New Hampshire of reduced construction of multi-family housing. During the first six months of 1999, the number of permits authorized for multi-unit housing showed a 28.7% decrease to a total of 204, compared to the same time period in 1998. In 1998, just 461 permits were issued for multi-family housing units. As a further illustration, from 1980 through 1989 multi-housing permits averaged more than 30% of the State’s total permits issued each year. From 1990 through 1998, the similar average was down to 10.8% of the State’s annual housing permits. In fact, for 1998 the annual percentage of multi-family housing permits issued fell to 8.8%.”

Therefore, the construction of new multi-family units and apartments that are affordable to moderate-, low-, and very low-income households (perhaps with subsidies for the latter) must be a priority if Nashua, the region, and indeed the State, are to meet the demand for this type of housing. With so few private developers willing to construct multi-family housing, it is perhaps time to consider market intervention strategies that would make the construction of such units more attractive.

Several questions that come to mind are: How can the City of Nashua encourage private developers to construct this type of housing? Can incentives be provided at the local level, or must they come from the state or federal governments? What role can Nashua’s financial institutions play? What parts of the City may be suitable for new multi-family and apartment construction?

The 2000 Census will provide a detailed profile of Nashua’s housing stock, and the housing needs of its residents. It is recommended that a special housing task force be convened in the latter half of 2001 to review the 2000 Census data and develop strategies to meet the housing needs identified through the Census and other studies, such as the City’s Consolidated (Housing) Plan.

Click to return to the top of the Housing Element

VII. SUMMARY

1. Housing Statistics and General Characteristics

Nashua has grown substantially in recent decades. The number of housing units in Nashua increased dramatically between 1980 and 1990, from 25,444 to 33,383, or 31.2 %. However, while the City’s absolute number of
housing units increased by one-third in one decade, its relative share of the region’s housing actually decreased. This can be attributed to the tremendous amount of residential development that occurred in neighboring communities and throughout the State, and the fact that modest numerical increases in small communities generate higher percentage changes compared to a large community such as Nashua.

The City of Nashua contains a large percentage (35%) of the single-family homes in the region. While the number of single-family units has increased substantially, from 12,399 in 1980 to 14,733 in 1990, the percentage of single-family units as compared to total housing units in the City decreased, going from 48.7% in 1980 to 44.1% in 1990. The reason that the percentage of single-family units went down is because the number of multi-family units in Nashua increased by a staggering 50% in the 1980’s. Multi-family units in the region increased even faster at 62%, but Nashua still contains the majority (nearly 67%) of multi-family units in the region. 293 duplexes were built in Nashua in the 1980’s, an increase of about 10%. Duplexes represent 9.55% of the City’s housing stock, and the City is the home of 61% of all duplexes in the region. However, since the recession of the late 1980’s to early 1990’s, few multi-family and duplex units were built in the City. Most of the housing built in the 1990’s was single-family homes. The regional market demand for housing has led to increased rental costs in the City.

2. Housing Costs

The average selling price of homes in the Nashua region, after a slowdown in the early 1990’s, picked up substantially. The number of sales closed rose 163%, from 1,059 in 1990 to 2,785 in 1999. Also, the number of residential building permits issued per year has increased since the slow down of the late 1980’s and early 1990’s.

The average selling price of a home in the Nashua region in 1999 ($151,851) surpasses the median value of Nashua housing in 1990 ($138,000). Between 1970 and 1980, the median value of owner-occupied housing increased by 189%; between 1980 and 1990 it increased by 149%; and since 1990 it dropped until 1994, when it began to rise steadily.

3. Rental Housing

In 1990, Nashua had a considerably higher percentage of renter-occupied units (42.3%) than the region (31.2%), County (36.3%), and State (31.8%). Nashua possesses 10% of the renter-occupied units in the State, and two-thirds (68%) of the renter-occupied units in the region. As mentioned above, rents have risen sharply in recent years as demand for rental housing has far outpaced supply. In 1990, the rental vacancy rate in Nashua was 17.1%; in 1998 it dropped to .4%. This is a much greater change than the State average, for which the rental vacancy rate was 8.7% in 1990, and 2.3% in 1998.

Given the dramatic drop in vacancy rates, it is not surprising that the average cost of a two-bedroom rental apartment in Nashua rose by 29% between 1990-2000, from $695 to $896. The median monthly gross rental cost for all types of apartments was $874 in 2000.

Over the last decade, the construction of new multi-family housing units decreased markedly in Nashua, the region, and the State as a whole. If Nashua is to meet the housing needs of all of its residents, at all income levels, then strategies to increase the number of multi-family housing units must be devised, and an action plan should be implemented as soon as possible.
XII. LAND USE ELEMENT

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XII. LAND USE ELEMENT

I. INTRODUCTION

A. Preface

This Land Use Element of the Nashua 2000 Master Plan represents the culmination of all the data collection and analysis that has been assembled in the other Elements of the Master Plan. This Element has two main focuses. One is an examination of existing conditions and a review of historical changes in development patterns that have occurred since the previous (1985) Master Plan was completed for the City. The second is the development of a Future Land Use Plan that will be used as a guide to revise the City’s land use regulations, such as the Zoning Ordinance and Subdivision Regulations. The Future Land Use Plan, together with the recommendations contained in the other plan elements, will be used by the City as a planning tool to guide development through the next decade and beyond.

B. Items Covered in the Land Use Element

After presenting the Land Use Goals and Objectives, this Element will briefly provide an historical overview of land use in Nashua, followed by a discussion of land use changes that have occurred since the completion of the 1985 Master Plan. The extent of vacant and developable land that exists today will then be examined, followed by an estimate of future growth projections.

The Future Land Use Plan will then be presented, which includes the land use-related recommendations from the various elements of the Master Plan, followed by a discussion of areas of special planning concern and topics recommended for further study.

II. SUMMARY OF MAJOR FINDINGS
In terms of land use, the land use that expanded the most in the last fifteen (15) years was low-density, single-family home development (R-30 and R-40 densities). This land use area increased by 726 acres or nearly 106%, over the 685 acres in that land use category in 1985. During the same period, medium-density residential development (R-9 and R-18 densities) expanded by 1,753 acres, or 34%. The spread of relatively low-density, automobile-oriented, single-family home development has been termed “sprawl” by some commentators, although Nashua’s definition of low-density development would equate to medium-density development in many of its surrounding, rural communities. The changes in commercial and industrial land use were more modest, with the amount of land in active industrial land possibly decreasing slightly due to conversion of industrial land to commercial use.

The City’s recent acquisition of additional conservation and recreation land in the southwest quadrant increased the amount of conservation land in the City by nearly 25%, with several other acquisitions bringing the total increase to approximately 32%. These recent land acquisitions are commendable, but this Plan recommends that additional high priority conservation and recreation lands be acquired or otherwise protected in the near future. Due to the rapid rate of land consumption by development, opportunities for land acquisition for recreation, conservation, and other municipal uses (including land for schools, fire stations, and other municipal uses) will soon vanish.

Nashua has approximately 1,900 acres of “vacant,” subdividable land remaining. Not all of this land will be developable due to wetlands, steep slopes, shallow depth to bedrock, and other constraints. The 1,900 acres represents approximately 10% of the City’s land area. Therefore, Nashua is roughly 90% built-out at this time. Future growth estimates conducted by City Planning Staff indicate the possibility of between 1,000 – 1,400 additional single-family homes, 75 – 150 units of multi-family development, 640,000 square feet of commercial space, and 3,200,000 square feet of additional park industrial / office space by the time of build-out. All of these figures are estimates, which assume maximum use of the remaining developable land.

There are several zoning “hot spots” that the City may wish to address in the near future. The first is the large area zoned general industrial (GI) east of the downtown. This is one of Nashua’s oldest neighborhoods, which has actually been developed with a wide mix of land uses, including multi-family dwellings, and commercial and industrial uses. It may make sense to designate this area a Mixed-Use Overlay Zone, similar to the one in place for the downtown and the Millyard. Such a zoning designation would bring many of the non-conforming lots in this neighborhood into conformity, thereby decreasing the amount of special exceptions and variance requests, and more importantly would reflecting the actual character of the area.

The industrially zoned land in northwest Nashua is one of the City’s last frontiers for industrial development. Most of this land also happens to be in the watershed of the Pennichuck Brook system, and an extensive network of streams and wetlands is found in this area. Nearly the entire area is also underlain by a high-yield aquifer that could supplement the City’s water supply in the future, if needed. Due to these environmental factors, this Master Plan recommends that a balance be struck between future industrial development and the need to protect the water resources of the area. Though vacant, developable industrial land in the City is scarce, the water supply resources of this land are too valuable to be ignored. For this reason, the Future Land Use Plan map shows part of this land as reserved for conservation, and a modest amount devoted to industrial use. This line does not constitute a hard and fast delineation by any means, but is intended as a reminder of the land use issues inherent in this property.

The inner city neighborhoods surrounding the downtown should be a prime target for continued revitalization efforts. Although much progress has been made in improving these neighborhoods in recent years, more effort is needed to address areas of blight and decline. The “outer blocks” of the downtown (those east and west of Main Street) are the next frontier in the City’s ongoing efforts at downtown revitalization. Most of the recommendations of the Downtown 2000 Plan are still valid, and that Plan should be consulted for guidance in this area.

As the City continues toward build-out, more and more development will be forced onto “infill” sites in already developed areas, many of which are in or adjacent to residential neighborhoods. Given this trend, more attention should be given to providing adequate buffers between conflicting Land uses, such as commercial / retail sites adjacent to residential neighborhoods. It may be worthwhile to consider changes to the zoning ordinance for those areas with the greatest commercial infill potential that are adjacent to residential neighborhoods.
III. LAND USE DEVELOPMENT PATTERNS

A. Historical Overview

Nashua is a city defined by its rivers. Located at the confluence of the Nashua and Merrimack Rivers, Nashua was perhaps destined to become a mill city. With railroad connections to Worcester, Lowell, Boston, and Maine, Nashua’s location at the heart of New England helped to facilitate its rise to prominence as a center of commerce and manufacturing.

In terms of land use, Nashua’s built environment until the 1950’s was largely confined to the areas along the Nashua and Merrimack Rivers, the inner city, and the downtown. Residential neighborhoods gradually spread out from the inner city. These early residential neighborhoods spread north along Manchester and Concord Streets, south along South Main Street, west along West Hollis Street and Lake Street, and east along Canal Street and East Hollis Street. Until the 1960’s, there were very few subdivisions built in the areas presently west and south of the F. E. Everett Turnpike. In fact, one can make the argument that Nashua wasn’t “discovered” until the construction of the Turnpike, which made access to the City much easier. From 1930 to 1960, the City’s population only increased by 7,633, whereas in the 1960’s alone it increased by 16,724! The Everett Turnpike was completed in the mid-1960s, and this transportation investment is reflected in the increased population statistics.

Contrary to the popular belief that Nashua grew the fastest in the 1980’s, Nashua actually experienced the greatest amount of population growth in the 1960’s (43%). In the 1970’s, the City experienced only half the percentage increase of the 1960’s, with a 22% increase. However, as is often the case, the rate of land use change and the rate of population change don’t always coincide. The City’s rapid expansion in terms of land use did not begin until the 1970’s, when areas west of the Turnpike, both in the northwest and southwest quadrants, exploded with residential subdivisions. The pattern of new residential development, which has been expanding in a radial fashion from the central city over the last few decades, has not changed, though the quantity of such development has obviously increased. The manner in which land uses have expanded their ranges since 1980 is shown on the Map XII –1, Sequence of Development.

B. Land Use Change: 1985 - 1999

By the late 1970’s through the early 1980’s, the basic pattern of development in Nashua had been set. This means that the basic areas which had been, and which through zoning are contemplated for, different types of development had been designated by that time. Commercial land use was, and still is, concentrated along Route 101-A, Daniel Webster Highway south, and to a lesser degree along Broad Street between Amherst Street and Exit 6. The industrially zoned areas of the City have not changed significantly since the mid-1980’s, except for some loss of industrial land fronting on Route 101-A through rezonings to commercial. The pattern of new residential development, which has been expanding in a radial fashion from the central city over the last few decades, has not changed, though the quantity of such development has obviously increased. The manner in which land uses have expanded their ranges since 1980 is shown on the Map XII –1, Sequence of Development.
The 1985 Master Plan contains two tables illustrating recent land use statistics for Nashua. The first shows changes in land use for the period 1968 – 1985. The second provides a detailed account of present (for 1985) land uses, including information on total acreage, percent developed, percent open / vacant, etc., for each land use category.

The following table and narrative examine changes in land use from 1985 to the present. Table XII – 1 provides a comparison of land use area statistics given in the 1985 Master Plan with those calculated for this Nashua 2000 Master Plan. For some land uses, a direct, scientifically valid comparison was not possible, due to differences in the classification system used in 1985 with that used in 1999. For example, some areas classified as “medium-density residential” in 1985 have been reclassified to low-density residential in 1999, and vice versa. Some areas that were classified as commercial, such as the hospitals, are now classified as institutional. Every effort was made to increase the accuracy of the land use classifications over those used in 1985. A first printing of the City’s Geographic Information Database (GIS) map, showing both buildings and parcel boundaries, assisted in this effort. It must be emphasized, however, that the boundaries drawn for this exercise are approximations, and that for several land uses listed in the 1985 Master Plan (such as “circulation”) visual estimates were necessary. The land use areas were not derived through manipulation of a GIS database, but through application of the older AUTOCAD method to the GIS map. Once the City’s Planning Department has the ability to manipulate GIS data and produce its own GIS maps, a more accurate, current land use map and database should be prepared.

The amount of developable land that was calculated through Assessor Map research and a MIS data request was approximately 1,900 acres, whereas the amount estimated through this exercise was approximately 1,260 acres. The discrepancy is probably the result of a combination of large parcels with one home, which would have been classified as “low-density residential,” along with some areas of vacant, or underutilized industrially-zoned land being counted as “industrial.” This would have decreased the amount of land classified as “vacant.” Nonetheless, the table should be useful for a qualitative assessment of land use change between 1985 and 1999. Following the table is a verbal description of estimated land use changes over the 14-year period.

### TABLE XII – 1

<table>
<thead>
<tr>
<th>LAND USE</th>
<th>1985 AREA (acres)</th>
<th>Percent of total City area, 1985</th>
<th>1999 AREA (acres)</th>
<th>Percent of total City area, 1999</th>
<th>% Change in area, 1985 - 1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Density Residential</td>
<td>685</td>
<td>3.47%</td>
<td>1,411</td>
<td>7.15%</td>
<td>106%</td>
</tr>
<tr>
<td>Medium Density Residential</td>
<td>5,137</td>
<td>26.02%</td>
<td>6,890</td>
<td>34.89%</td>
<td>34%</td>
</tr>
<tr>
<td>High Density Residential</td>
<td>2,552</td>
<td>12.92%</td>
<td>2,652</td>
<td>13.43%</td>
<td>4%</td>
</tr>
<tr>
<td>Commercial</td>
<td>776</td>
<td>3.93%</td>
<td>876</td>
<td>4.44%</td>
<td>13%</td>
</tr>
<tr>
<td>Industrial</td>
<td>1,675</td>
<td>8.48%</td>
<td>1,601</td>
<td>8.11%</td>
<td>-4%</td>
</tr>
<tr>
<td>Institutional</td>
<td>870</td>
<td>4.41%</td>
<td>1,331</td>
<td>6.74%</td>
<td>53%</td>
</tr>
<tr>
<td>Park, Rec. or Conservation</td>
<td>1,154</td>
<td>5.84%</td>
<td>1,524</td>
<td>7.72%</td>
<td>32%</td>
</tr>
<tr>
<td>Circulation / Misc.</td>
<td>2,147</td>
<td>10.87%</td>
<td>2,197</td>
<td>11.13%</td>
<td>2%</td>
</tr>
<tr>
<td>Open / Vacant Land</td>
<td>4,750</td>
<td>24.06%</td>
<td>1,264</td>
<td>6.40%</td>
<td>-73%</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>19,746</strong></td>
<td><strong>100.00%</strong></td>
<td><strong>19,746</strong></td>
<td><strong>100.00%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Note: Due to differences in the land use classifications used in the 1985 Master Plan and this plan, the above comparison should be used for qualitative purposes only. An attempt was made to make the 1999 land use classifications more accurate in terms of actual density of land use, and in areas devoted to conservation and institutional use. A revised table that would enable a more accurate comparison may be possible using the City’s GIS system when it becomes available.

*Residential:* As seen in Map XII - 1, the greatest expansion of residential land use occurred from the 1970’s through
the mid 1980’s. Residential development west of the F.E. Everett Turnpike took off during this period. As seen on the map, residential development continued to expand in the 1990’s, though at a slower pace. While a fair amount of the development in the late-1970’s and in the 1980’s was high- and medium-density residential, including several condominium complexes, most residential development since has been of the low-density variety. As seen in Table XII – 1, low-density residential development expanded tremendously from 1985 – 1999. The area devoted to medium-density residential also expanded a great deal. Most of this development occurred in the southwest and northwest quadrants.

Map XII-1 Sequence of Development

**Commercial:** As seen on the Current Land Use maps, most commercial development is found along Amherst Street / Route 101-A and along the Daniel Webster (south) Highway, with smaller concentrations in the inner city, along Broad Street and along Northeastern Boulevard. The basic pattern of commercial development was established in the 1970’s, although the quantity of such development accelerated in the 1980’s and continued into the 1990’s. The Pheasant Lane Mall, for example, was built in the mid-1980’s. The amount of commercial land did not increase tremendously, since most commercial parcels are fairly small, with the exception of malls and large shopping centers.

Map XII-2 Current Land Use

**Industrial:** Most of the City’s industrial areas were established prior to 1980. During the 1980’s and, to a lesser degree the 1990’s, some areas that were zoned industrial have been rezoned to commercial, particularly along the Route 101-A corridor. According to recent calculations, the amount of land in active industrial use decreased by about 4% between 1985 and 1999. Much of this loss is probably due to the conversion of industrial land to commercial use, especially in the Route 101-A corridor.

**City-owned / Municipal:** The area of City-owned land has remained fairly constant during the 1980’s and 1990’s. In 1999, the City acquired 292 acres of recreation / conservation land in the City’s southwest corner. Most of this land will be used for active recreation / sports fields, although land was acquired around Lovewell’s Pond and in the area between Ridge and Buck Meadow Roads will be used as conservation land.

**Vacant / Open Space:** In Map XII – 2, Current Land Use, privately-owned vacant / open space land is shown in white. Some of this land, such as in the vicinity of the “4-corners” area of southwest Nashua, will soon be developed for a mixed-use residential, village commercial and elderly housing complex. The largest blocks of existing open space are found in the City’s northwest corner, in the northeast corner along the Pennichuck Brook system, in the southwest corner west of Yudicky Farm and south of Cold Brook, and north of the Sheraton Hotel and industrial park land near Exit 1. Vacant / open land accounted for approximately 24% of the City’s land area in 1985, whereas today it likely stands between 6.4 % (if 1,264 acres) and 9.6% (if 1,900 acres).

C. Developable Land and Future Growth Estimates

One of the most interesting yet difficult tasks in planning is to estimate the extent of future growth that will have occurred ten or twenty years from the present. There are several planning tools available to assist one in such an effort, and perhaps the most well-known is the “Build-Out Analysis.” A build-out analysis is a numerical and / or
graphic study that estimates the quantity and spatial distribution of future development, based either on present zoning requirements, or hypothetical requirements. It can therefore be used to test the effect that rezoning proposals and other proposed land use regulations will have on the extent and arrangement of development. Several build-out studies were conducted as part of the process for the Southwest Quadrant Master Plan (1996). That Plan, the first part of the Master Plan Update of the 1985 Nashua Master Plan, estimated that approximately 1,100 new housing units could be built in the southwest quadrant alone, based on existing zoning.

A key assumption of build-out scenarios is that ALL developable land will be developed to its maximum potential. Build-out studies thus present “the worst case scenario” from the municipality’s point of view, since most housing development results in a negative cash flow for the municipality. This is because the amount of taxes and fees coming into a community’s coffers from most residential development does not equal the amount spent on services (schools, fire, police, waste disposal, etc.) generated from that development. It must be emphasized that all build-out results are approximations that, if anything, tend to somewhat overestimate the amount of building that may actually occur. It is better for a municipality to anticipate growth at the higher end of such an estimate, however, than to expect that a lesser amount of growth will definitely occur. Since the southwest quadrant is still the City’s “final frontier” in terms of large tracts of buildable land, separate graphic build-out studies were not performed expressly for this Nashua 2000 Master Plan.

Although Nashua is close to build-out, with most of its development behind it, there is still a fair amount of developable land in the City. Build-out of this remaining developable land would result in a modest increase in the City’s population, a fairly large increase in industrial and office space, a smaller increase in commercial space, but, perhaps most importantly, the loss of most of Nashua’s remaining, privately-owned open (“vacant”) space. The development that occurs over the next 10 – 20 years will largely determine Nashua’s character and appearance for the foreseeable future (It may be helpful to refer to Table XII – 2 when reviewing this section.)

As seen in Table XII – 2, there are approximately 1,414 acres of developable land remaining in Nashua. Not all of this land may be developable, due to the presence of wetlands, steep slopes, shallow depth to bedrock, and other development constraints. Nonetheless, it is a useful figure to use for numerical build-out exercises. This 1,414 acres represents about 7.2% of the City’s land area of 19,746 ± acres. So, at the present time, Nashua is approximately 93% built-out. 396 of the buildable acres are industrially zoned, most in the Park Industrial district; only 11.36 acres are commercially zoned; and 1,006 acres are residentially zoned. A detailed breakdown for each zoning district is found in the Table.

Two methods were used to obtain these estimates of developable land. First, a data request was placed with the City’s Management Information Services (MIS) Department to search for all parcels coded “vacant / no building value” in the City’s assessing database. Second, Planning Department staff reviewed the assessor maps for large (> 10 acres) parcels that appeared vacant. The list of these parcels appears in Table XI – 26 in the Housing Element. The two methods resulted in a vacant land estimate differing by only 34 acres. The MIS method resulted in an estimate of 1,414 acres, and the manual tax map research resulted in an estimate of 1,380 acres. Interestingly, the MIS total includes land in the R-B and R-C zoning districts, which were not included in the manual search.

The “MIS method” resulted in an estimate of 1,513 units, and the “manual method” resulted in an estimate of 1,190 units. These numbers appear near the upper and lower ends of the range estimated through the earlier “traffic analysis zone” (TAZ) method used to estimate the City’s development potential for traffic planning purposes by the Nashua Regional Planning Commission (NRPC). The TAZ exercise is described below.

To calculate the potential number of dwelling units for the residential districts, a formula was applied to the acreage in each zoning district. This formula applied was: Land area in square feet multiplied by .75 (an estimate of how much of any given parcel may be buildable, subtracting out wetlands, steep slopes, areas for roads, etc.), and that number then divided by the minimum lot size of the district. The results of this numerical build-out, as applied to the “MIS method,” are found in Table XII – 2. If the developable land totals for the R-A, R-B, and R-C districts hold true and this land is developed to its maximum potential, a total of 314 units may be possible in these “letter” districts. However, the potential number of units in these districts could actually be somewhat higher, as multi-family units are permitted in the R-B and R-C districts, and duplexes are permitted by right in the R-A district. The R-9 estimate is for
TABLE XII - 2
DEVELOPABLE LAND IN THE CITY BY ZONING DISTRICT

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>DEVELOPABLE LAND (acres)</th>
<th>% OF TOTAL DEVELOPABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDUSTRIAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.I. *</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>P.I.</td>
<td>379.13</td>
<td>26.81%</td>
</tr>
<tr>
<td>A.I.</td>
<td>17.19</td>
<td>1.22%</td>
</tr>
<tr>
<td>Sub-Total:</td>
<td>396.32</td>
<td>28.03%</td>
</tr>
<tr>
<td>COMMERCIAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H.B.</td>
<td>11.36</td>
<td>0.80%</td>
</tr>
<tr>
<td>Sub-Total:</td>
<td>11.36</td>
<td>0.80%</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RA</td>
<td>10.09</td>
<td>0.71%</td>
</tr>
<tr>
<td>RB</td>
<td>10.65</td>
<td>0.75%</td>
</tr>
<tr>
<td>RC</td>
<td>22.72</td>
<td>1.61%</td>
</tr>
<tr>
<td>R-9 **</td>
<td>41</td>
<td>2.90%</td>
</tr>
<tr>
<td>R-18</td>
<td>196.75</td>
<td>13.91%</td>
</tr>
<tr>
<td>R-30 **</td>
<td>372.43</td>
<td>26.34%</td>
</tr>
<tr>
<td>R-40 **</td>
<td>352.82</td>
<td>24.95%</td>
</tr>
<tr>
<td>Sub-Total:</td>
<td>1,006.46</td>
<td>71.17%</td>
</tr>
<tr>
<td>GRAND TOTAL:</td>
<td>1,414.14</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Source: City of Nashua Assessing and MIS Departments, and Planning Department Research.
Notes: *There may be some developable land in the GI District, but no totally vacant lots were listed in the City’s database.
This table should be considered an approximation of developable land. A more accurate assessment of developable land and build-out potential should be possible once the City’s GIS is fully operational.

In 1998, the Nashua Regional Planning Commission (NRPC) asked the City of Nashua Planning Department to provide an estimate of potential future residential, commercial, and industrial growth for each of the City’s traffic analysis zones (TAZ’s), for use in their regional traffic model. In essence, the TAZ exercise constitutes a simplified version of a build-out analysis. The results of the build-out study performed for the Southwest Quadrant Master Plan Update were incorporated into the TAZ estimates. In the spring of 1999, the City of Nashua Planning Department revisited the original TAZ estimates in order to provide NRPC with refined numbers to be used in traffic projections. The discussion below is based on these revised numbers. The TAZ exercise is especially useful for estimating the amount of non-residential growth that may occur. It is more difficult to estimate potential non-residential growth through a strictly numerical approach; therefore, the more informal TAZ exercise was used to estimate potential commercial and industrial growth. The 1999 TAZ update resulted in the following growth estimates for the period 1999 – Build-Out. It must be emphasized that the following are estimates of development potential, which, if anything, tend to somewhat overestimate the amount of development that will actually occur. Due to uncertainties of rezoning and the degree of infill development, several of the estimates given below are provided as a range.

The additional growth estimates are:

- Single-family Homes: 1,000 – 1,400
- Multi-Family Dwellings: 75 - 150
- New Retail / Commercial: 640,000 sq.ft.
- New Industrial, Research and Development, High-end Office: 3,200,000 sq.ft.
- One new High School and possibly one new Elementary School (S.W. Quadrant)

**Note:** The new High School is proposed to open in fall 2002. Based on the above estimate, new residential growth will increase about 4% over the 1998 estimate of 34,593 dwelling units in the City. The City is thus very close to residential build-out, and if the recent average growth rate of 120 additional units per year holds true for the near future, residential build-out could be reached in 12 years, or by 2012. Assuming an average of 3.04 persons per unit (single-family home multiplier), new growth alone will result in an additional 4,256 residents. As Nashua’s 1997 population was estimated at 83,840, new growth will bring the City’s population to about 88,000, before the amount for natural increase is factored in. The Office of State Planning estimates the City’s population in 2020 to be 91,145, which is consistent with the estimates generated through the TAZ exercise.

The close correspondence of results from the numerical build-out exercises and the TAZ exercise provides a degree of comfort for these future growth estimates. Of course, rezonings and other land use changes that deviate from the Future Land Use Plan would affect the assumptions that underlie these exercises.

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### IV. FUTURE LAND USE PLAN

#### A. Land Use Related Recommendations from Other Plan Elements

Each Element of the *Nashua 2000 Master Plan Update* includes recommendations for action or further study. Many of these recommendations are land use-related, while some are program-related or related to other areas of concern. Below is a summary list of the recommendations from each Element that are land use-related. As such, they can be considered part of the Future Land Use Plan of the *Nashua 2000 Master Plan Update*. As some of these recommendations also relate to zoning changes, they may be repeated in the zoning districts discussion at section IV.B.2.

1. **Community Facilities Element**

- Ensure that school sites are large enough to accommodate all necessary educational functions, as well as necessary recreational and open space for students.
- Consider acquiring a site for possible new school in the SW quadrant.
- Examine the extent of the City’s historic district and determine whether the boundaries need to be modified.
- Increase Neighborhood Police Offices / Sub-stations if and where appropriate.
- Identify and acquire site for possible new fire station in the SW quadrant.
- Improve fire service to the NW quadrant, particularly the Route 101-A corridor, either by building a new fire station or through alternative means such as expanded mutual aid.
- Given the concentration of medical uses centered at St. Joseph’s Hospital and the Southern New Hampshire Medical Center, it may be worthwhile for the City to consider implementing a “Medical Services District” for the areas centered on these two major city hospitals. The hospitals and nearby medical offices would be the primary “permitted by right” land uses.
Consider a “Higher Education District” around the City’s campuses, similar to the Medical Arts District described above.

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2. Economic Development Element

- Remediate and redevelop Nashua’s brownfield sites in a manner that would bring about positive environmental and economic change.
- Encourage the development community and financial institutions to support infill development generally, and re-development of brownfield sites, in particular.

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3. Housing Element

- Reserve lands for a broad range of residential densities and lifestyles.
  - Give priority to the rehabilitation of vacant, substandard inner city buildings.
  - Give priority to the rehabilitation of vacant, substandard inner city buildings that can be used as rental housing.

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4. Industrial Element

- Identify underutilized industrial sites.
- Encourage and support infill industrial development next to existing industrial sites.
- Encourage and support the reuse and rehabilitation of existing, underutilized industrial buildings.
- Solve the access problems to the industrially zoned area north of Spit Brook Road, and work with the landowners to develop a master plan for this area.
- Consider the appropriateness of industrial revitalization plans for the following industrially zoned areas: N.E. Boulevard, Simon Street, the Millyard, the Airport and Park Industrial area near the Airport, and the former John Mansville property north of Canal Street.
- Promote industrial expansion or revitalization in harmony with surrounding land uses.
- Consider what additional lands, if any, would be best suited for industrial use if the existing stock were to fill up.
- Provide a reasonable amount of space for heavy industrial uses, provided they are environmentally sound and do not detract from neighboring land uses.
• Provide adequate zoning for industrial park type development.

• Encourage industrial development that is attractive, well-landscaped, sensitively sited, and compatible with surrounding land uses.

• Re-examine allowable uses within the industrial zoning districts to enable compatible, supportive commercial uses.

• The City should strive to retain and assist existing industries in the GI zones which provide employment to a large number of Nashua’s citizens. For non-conforming uses, one recommendation would be to delineate areas that are predominantly commercial or residential, and re-zone them for their appropriate use and density. That will prove beneficial in that these uses will no longer be non-conforming, and may reasonably be modified or expanded without a variance.

• Adjust the boundaries of the Industrial Districts to reflect current land uses in developed areas where such land uses are well-established and unlikely to change. For example, several sections of GI Zone 5 are either predominantly commercial or residential. The non-conforming nature of these land uses often results in the seeking of variances when changes are proposed on these lots. To reduce the number of cases that come before the Zoning Board of Adjustment and create a Zoning Map that more accurately reflects current (and likely future) land uses, some minor adjustments to zoning boundaries should be made.

• The entire area of GI Zone 5 could be designated a Mixed-Use District, either per Division 20 of the Nashua Zoning Ordinances, as it currently applies to the GI / MU area (the Millyard and surroundings) and the CB / MU area (the downtown) or, as modified for the special needs of the area of GI Zone 5. Mixed-Use Districts can accommodate alternative uses such as residential and commercial, given that certain standards are met that ensure that any such new development is compatible with what already exists in the area. Any expansion or change to a commercial use that would require the submittal of a site plan would then fall under the Mixed-Use District guidelines, providing an added degree of review authority to ensure compatible development. It is recommended that any rezoning effort, whether it be to “outzone” residential and commercial areas, or create a Mixed-Use Overlay District, be done only after careful study.

• Revise Nashua’s Zoning Ordinance to reflect the current state of industry. For example, manufacturing is represented by one category in the Table of Permitted Uses, which covers the spectrum from small start-up firms to large heavy industrial users. A more refined Table of Permitted Uses under the manufacturing category may lead to better land use outcomes.

• In the near future, it may be appropriate for the City to prepare, perhaps with assistance from private consultants, industrial revitalization plans for the following areas: Northeastern Boulevard, Simon Street, the Millyard, the Airport Industrial District, and the GI area east of the downtown. In addition to addressing planning and economic issues, the plans should address infrastructure issues and roadway improvements for these areas.

• For PI Zone 1 and “Parcel M,” a definitive wetland, floodplain and critical watershed buffer delineation is needed in order to determine which land is best suited for industrial development, and which should be preserved from development because of ecological factors. Current wetland mapping is not accurate enough to be useful in developing a Master Plan for this area.

• Consider whether a separate Office Park (OP) District makes sense from a zoning and land use perspective, given that several of Nashua’s Park industrial zones are primarily in office / hotel use. This zone would allow all of the uses currently permitted in the Park Industrial District, but would make special provisions for higher intensity office use by allowing additional building height (perhaps a 60 foot maximum rather than the current maximum of 45 feet) and by possibly making other modifications to the dimensional regulations. Such an OP
zone would perhaps be best suited to the PI zone 2 (Exit 8) and PI zone 4 (Exit 1).

- The City and / or other economic development entities (The Chamber of Commerce) should consider conducting a feasibility study of potential non-industrial uses (residential, office, warehouse, etc.) of upper level space in existing mill buildings, should such space prove to be undesirable for industrial development. It is better for such space to be used for some productive use, even if non-industrial, than for it to sit vacant for long periods.

- Consider whether a separate Airport Industrial District still makes sense, given that the FAA regulates the clearzones in the vicinity of the Airport in any case, and that expansion of the Airport beyond the B&M railroad line is highly unlikely to occur. Since the Airport Industrial district use and dimensional regulations are very similar to those of the Park Industrial district, perhaps the present AI district could be converted to Park Industrial. If concerns over building height and other dimensional regulations in the immediate vicinity of the Airport are pertinent, then perhaps the dimensional regulations in that area could be modified somewhat from that of the remainder of the PI district. Before any actions are proposed to modify or absorb the Airport Industrial District into Park Industrial, it is recommended that meetings take place between City officials, the Airport Authority, and business owners in the AI District. A series of such roundtable meetings may uncover issues not considered here, which will help to fine-tune any action taken on this matter.

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5. Conservation and Preservation Element

- Examine the feasibility of implementing river corridor greenways along the Nashua and Merrimack rivers and Salmon Brook. If any of these should prove feasible, in whole or in part, develop an implementation plan.

- Acquire additional open space areas. Emphasis should be on linking existing parks, conservation areas, and common open space to create a network of open spaces that could result in a greenway or similar open space network.

- Amend the Site Plan and Subdivision regulations to address the protection of existing vegetation (especially large trees) in development sites. Clearcutting or near clearcutting of vegetation should be prohibited.

- Encourage the use of the Cluster and PRD styles of subdivision development, to enable greater amounts of open space in subdivisions.

- Amend the Cluster and PRD sections of the Nashua Zoning Ordinance to require that a greater amount of open space be set aside than is required at present. Decrease the amount of wetlands that can qualify towards the total open space area.

- Identify the most scenic areas in Nashua, and determine if the existing land use regulatory structure is sufficient to protect their scenic attributes in the face of development. If not, develop additional land use tools to protect these scenic resources for the enjoyment of all Nashua residents. Protection of such scenic areas through acquisition or conservation easements should also be seriously considered.

- The City should consider purchasing the small, residentially zoned property to the immediate west of Horrigan Park, which would extend the Park and allow for a small parking area. At present, official parking and access into the Park is lacking.

- The conservation priorities identified through the Regional Environmental Planning Program (REPP) should be re-
examined by a wide range of City boards, officials, and the public. If, after such review, it is determined that
the list of local conservation priorities needs modification or refinement, then the City should undertake such
refinements.

- The City should solicit input from the owners of land currently identified as priorities through the REPP process. If
the list of priority parcels is modified from that appearing in this Plan, then those landowners should be contacted
for their input as well. If effective conservation arrangements are to be worked out, it is imperative that the City
work closely with the owners of land identified as priorities for conservation.

- The City should carefully consider the acquisition, or protection through conservation easements, of the properties
identified as regional priorities through the REPP process. The parcels along the Nashua River, in particular,
deserve careful consideration.

- The City should consider adopting a greater effective shoreline buffer for the Nashua and Merrimack Rivers than
that provided through the New Hampshire *Shoreland Protection Act*. Currently under the Act, development
can occur up to 50 feet from the mean high water mark of these rivers. A review of similar shoreline
protection ordinances from other communities should be undertaken to help determine an adequate shoreland
buffer zone.

- The City should strongly consider adopting a *soil erosion and sediment control* ordinance, which would
comprehensively address many of the non-point sources of water quality degradation discussed in the *Water
Resources Protection Plan*.

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6. Utilities and Public Services Element

- Plan all infrastructure improvements comprehensively, taking road improvements, sidewalks, street tree plantings,
water lines, sewer lines, natural gas lines, electrical service and cable TV service into account when doing any
road work or other infrastructure improvements.

- Check for road improvements for bikes etc.

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7. Transportation Element

- Ensure that every neighborhood in the City has access to schools, community centers, parks and open space areas
via sidewalks or other trails.

- Encourage investment and restoration of the existing urban center of Nashua. Infill development within the
existing urban center will conserve environmental resources, reclaim marginal and abandoned areas, and will
encourage walking and the use of transit, thereby reducing the number and length of automobile trips.

- The City should allow for increases in residential densities to support transit. The City should identify potential
sites for higher densities in the vicinity of the Broad Street Parkway and develop guidelines for such
development through design standards and site plan review.
B. Areas and Topics Recommended for Further Study

1. Areas of Special Planning Concern

There are several areas in Nashua that, by virtue of their nature or location, deserve special study. These areas of special planning concern include:

- The downtown core area of the City that surrounds it (*including older residential and mixed-use areas*).
- Vacant or underutilized industrial areas, including the Millyard and the Johns Mansville site.
- The “gateway” entrances into Nashua, particularly from the east.
- Several other areas.

This section of the Land Use Element will examine these areas in greater depth and, when appropriate, make recommendations as to how these areas can be improved per the goals and objectives of the Master Plan. When the area or the issues involved with the area are complex, suggestions for further study will be made.

a. Downtown Nashua and the Inner City

Nashua’s downtown is one of the City’s most vibrant and important assets; however, it hasn’t always been that way. Historically, downtowns functioned as the civic, cultural, and economic centers of cities. However, as cities grew from the core outward, and as new commercial development settled along highways removed from the urban core, downtowns began to decline. This decline was gradual and, in Nashua’s case, become most pronounced in the 1980’s and early 1990’s. By that time, the malls and commercial centers along Daniel Webster Highway and Amherst Street replaced the downtown as Nashua’s primary retail destinations, and the flight of business from the downtown in turn led to increasing amounts of vacant space and a decline in public interest in the downtown. Although various downtown business and civic organizations attempted to reverse these trends, this desired revitalization proved elusive until the mid-1990’s.

In 1994, the City hired a Downtown Development Specialist. The Downtown Planner’s role was to attempt to jump-start downtown Nashua’s revitalization through a series of focused efforts. The question raised was: “*What can be done to make people want to come downtown, to make the downtown a destination in and of itself?*” The working assumption guiding most previous downtown revitalization efforts was to bring business downtown, in the hope that people would follow. The guiding principal of the new approach to downtown revitalization is: “*People don’t follow retail, retail follows people.*” Although this approach may have initially been perceived as somewhat unorthodox, it is based on the accepted wisdom that a strong retail market is the cornerstone of a downtown’s economic recovery. It is merely a question of how to best initiate this economic recovery.

The Downtown Planner and groups such as *Destination Downtown* proceeded to hold large public events and gatherings in the downtown. These events, it was hoped, would make people more aware of the downtown and the assets it has to offer. These events included the “Taste of Downtown Nashua,” “Twist the Night Away,” and the “Holiday Stroll.” A truly vibrant downtown must provide more than just shopping opportunities; it must provide a full range of recreational and cultural activities that draw people into the area for extended periods of time.

Gradually over a period of years, the public events attracted more and more people, and slowly, but surely, the downtown’s business climate began to improve. A diverse group of businesses and many fine restaurants have opened
in the downtown during the last few years. However, as with most planning efforts, long-term success for the downtown will come only after sustained effort. Although the downtown is currently a much more vibrant place than it was ten years ago, the City is not yet at the point where it can declare the job done, and indeed a comprehensive effort building upon this recent success is now underway.

One of the most exciting projects currently underway is the creation of a Riverfront Park along the banks of the Nashua River. The first step in this project was the development of the “Nashua Riverfront Promenade” on the south bank of the Nashua River along Water Street. The next phase will be to develop a park on the north bank of the Nashua River, west of Main Street. Eventually, this effort will seek to clean up and revitalize the riverfront east of Main Street, as well. Many cities, such as San Antonio, Texas, have turned their river frontage into extensive “linear parks,” and these riverfront parks have played a vital role in their revitalization.

Now that Main Street is experiencing a recovery and the Riverfront Park system is taking shape, the next frontier in downtown Nashua’s renewal is the blocks behind Main Street. For the most part, the blocks behind Main Street are underutilized; the largest use in terms of area is surface parking lots. Nashua’s downtown revitalization cannot be considered complete until these areas are given the same degree of attention that Main Street received over the last few years.

Many of these areas were identified as “opportunity sites” in the Nashua Downtown 2000 Plan prepared in the early 1990’s by a broad cross-section of Nashua citizens, business people and civic leaders. The Nashua Downtown 2000 Plan identifies several opportunity sites for public spaces, redevelopment, and other improvements, and for the most part these areas still warrant attention in 1999. Although the Plan was prepared in the early 1990’s, it is pertinent for the most part, but should be reassessed as part of the broader downtown planning effort.

Several other actions can be taken to improve the health and quality of the downtown. Among these are:

- The public spaces in downtown need to be maintained and enhanced if their value to the downtown and the City is to be fully realized.
- Introduce public art into the downtown.
- Develop a first-class performing arts center in the downtown area. The performing arts center should seat approximately 1,200 people in order to offer programming that is not available at the Library or 14 Court Street, and at the same time be in keeping with the scale of a small city.
- Develop policies for the use and restoration of historic buildings in the downtown.

The downtown does not exist in isolation. Surrounding the downtown on all sides are the core residential and mixed-use neighborhoods that were developed in the 1800’s and early 1900’s. These relatively densely populated neighborhoods once housed the City’s mill workers, and today they provide a large share of the City’s rental and affordable housing. Much of this housing was built before 1940, and in many instances is in need of rehabilitation. It is vital that downtown revitalization efforts be coordinated with efforts to improve the quality of life in the inner city neighborhoods. The downtown and inner city are intimately connected, and the fate of each area is intertwined with that of the other.

The City of Nashua should direct its downtown and inner city revitalization efforts to the following areas in more or less the order given below. Efforts for areas 1 – 3 are already underway and continuing:

1. Main Street
2. Railroad Square
3. Nashua Riverfront
   4. Blocks behind Main Street, both east and west
4. South Main Street to Kinsley Street
5. West Hollis Street to Simon Street
7. “The Gateway” entrance from Hudson in the vicinity of Bridge and East Hollis streets

The following is a summary of downtown and inner city related recommendations and suggestions for further study:

- Conduct a study of sites in the inner city that may be suitable for redevelopment, either for housing or additional public spaces.
- Aggressively plan for the development of a performing arts venue in or near the downtown.
- Rehabilitate the City-owned buildings and public spaces in the downtown, including 14 Court Street, the Hunt Building, and Railroad Square.
- Facilitate the placement of public art downtown.
- Re-assess and revise the *Nashua Downtown 2000 Plan* in light of current conditions and planning efforts in the downtown.
- Hold a series of public forums on the residential areas of the inner city, including mixed-use neighborhoods and mill buildings.
- Develop unified façade and signage standards for commercial buildings in the downtown.
- Develop and nourish a partnership with the property owners on the north bank of the Nashua River in order to secure conservation / recreation easements which will help to foster the use of this area for conservation, recreation and education.
- Develop an aggressive grant writing initiative for the recreational, social and educational development of Nashua’s downtown riverfront.
- Develop an educational program for Nashua’s riverfront so as to make community, educational and civic organizations aware of the riverfront and to encourage them to program the riverfront into their planning and activities.

b. Nashua’s Gateways

Nashua has been called the “Gate City” due to its location on the Massachusetts border. Before the construction of Interstate 93, Nashua was the primary entrance from the south into New Hampshire. Gateways can also refer to all entrances into a community, whether it is on a state border or not. The nature and appearance of a community’s gateways play a large role in how that community is perceived by visitors, and even residents. Are the community’s gateways attractive? When driving, can you tell that you have crossed a town / state border? Is there signage to greet you? This section will take a brief look at Nashua’s gateways, and point out those needing attention.

Nashua is bordered to the south by the towns of Dunstable and Tyngsborough, Massachusetts; to the west by Hollis; to the north by Merrimack; and to the east by Hudson. The primary entry from the south is the F.E. Everett Turnpike. The combination of the turnpike widening and the signage greeting you to New Hampshire make it apparent that one has crossed the state line.

The main entrances from Hollis to the west are at Pine Hill Road and Broad Street in northwestern Nashua, and at Route 111 (West Hollis Street), Gilson Road, and Groton Road in southwest Nashua. There is a town-line sign at the Broad Street entrance, and that gateway is fairly attractive, as there is a farm and a church on the northern side of...
Broad Street, and an attractive entrance for Hollis Crossing on the south side of the street. A town-line sign is needed at the Pine Hill Road entrance. To the south, the entrance from Hollis on Route 111 is fairly attractive, though this would be an appropriate location for a “Welcome to Nashua” sign. The Gilson Road entrance from Hollis is fairly attractive, although a small sign would be appropriate here, as well. The Groton Road entrance, however, is presently not that attractive. Sand and gravel extraction operations on both sides of the Hollis / Nashua line detract from the area’s appearance, and due to the lack of signage, one is not aware of exactly where the border is.

The entry into Nashua on the Turnpike from Merrimack is attractive, in large part due to the Pennichuck Ponds and the protected land around them. An attractive sign just south of the line proudly proclaims Nashua’s “Best Place to Live in America” status. This sign would be a welcome addition to several of Nashua’s other gateways, especially the other main gateway from the north on Concord Street. The Tinker, Thornton, and Merrimack Road entrances from Merrimack are relatively minor, though attractive due to their crossing of the Pennichuck Pond system.

If the entrances from Merrimack, Hollis, and Massachusetts are, for the most part, attractive and complement the City, the northernmost entrance from Hudson stands in sharp contrast. As one crosses the Taylor’s Falls Bridge into Nashua, one encounters a disorganized and somewhat neglected section of the City. Granted, the homes located on Bridge Street, the “letter” streets, and East Hollis streets are older, and in many cases multi-family homes. However, given their location at one of Nashua’s busiest gateways, it perhaps behooves the City and the private sector to attempt to improve the appearance of these homes and the gateway area as a whole. As this part of Nashua is included in the CDBG / HUD target area, it may be worthwhile to pursue grants for landscaping, façade improvements, public art, and signage. The traffic islands between Bridge Street and East Hollis Street could be improved with landscaping, signage, and perhaps public art, which would greatly enhance this entryway. The Riverside Industrial Park on Bridge Street, just west of the new skateboard park, could enhance its appearance with façade improvements and landscaping.

- The City should improve the appearance of its gateways, with particular emphasis on the entrances from Hudson on Bridge Street and East Hollis Street and from the Everett Turnpike. City land at these gateways could be improved through a combination of landscaping, signage, and perhaps public art.
- The City should consider seeking CDBG or HUD grants for improvements at the Bridge / East Hollis Street gateway. Improvements to consider would involve landscaping, home and façade improvements, public art, and signage.
- The City should work with private landowners at the gateways, in particular at the Hudson entrance into the City, to improve the appearance of these areas. Assistance to private landowners may be possible through federal or state grants or other programs.
- The City should consider installing “Welcome to Nashua” signs at those roads entering Nashua that currently lack such signage.

### c. Other Areas of Special Planning Concern

There are several areas and sites in Nashua that can be considered “areas of special planning concern.” These areas are either underutilized, difficult to develop, or may become attractive for infill development or re-development, especially as prime vacant, developable land in the City becomes more scarce in the years ahead. It is recommended that these areas be studied in greater depth as part of the future land use planning process. The City can either undertake these studies on its own, or hire private consultants to conduct the studies. However it occurs, attention to these areas should improve the appearance and quality of life for these parts of the City. A preliminary list of “areas of special planning concern” is provided below. The “opportunity sites” identified in the Nashua Downtown 2000 Plan should also be considered areas of special planning concern. These sites are not listed below since they were previously mentioned or referred to in the downtown discussion. The following list can be added to or modified as
policy makers and planners decide on areas to target for special attention.

### Area(s) of Special Planning Concern

<table>
<thead>
<tr>
<th>Area(s)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Former Johns Mansville site on Bridge Street</td>
<td>Prime site for infill development or recreation</td>
</tr>
<tr>
<td>2. Beazer East site in northeastern Nashua</td>
<td>Identified as potential ballfield / recreation site (if appropriate)</td>
</tr>
<tr>
<td>3. French Hill residential neighborhood</td>
<td>Older residential neighborhood, target area for restoration</td>
</tr>
<tr>
<td>4. Tree Streets residential neighborhood</td>
<td>Older residential neighborhood, target area for restoration</td>
</tr>
<tr>
<td>5. Industrially-zoned land north of Spit Brook Road and west of the Turnpike</td>
<td>Prime industrial land which might require additional infrastructure</td>
</tr>
<tr>
<td>6. Industrially-zoned land west of the Boston and Maine railroad line in northwestern Nashua</td>
<td>Industrially-zoned, although the land is within the Pennichuck watershed and is of high conservation priority.</td>
</tr>
<tr>
<td>7. Turnpike interchanges</td>
<td>Mix of land uses and commercial signage detracts from visual quality. Need to address combined gas station / convenience stores which are proliferating near the interchanges. Many of these combined gas stations / retail outlets are brightly lit to the point where they may distract motorists.</td>
</tr>
<tr>
<td>8. Four-Hills Landfill</td>
<td>Future use of the landfill (once it reaches capacity and is capped) needs to be considered</td>
</tr>
<tr>
<td>9. Globe Plaza</td>
<td>Prime site for redevelopment and aesthetic improvements</td>
</tr>
</tbody>
</table>

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### 2. Nashua’s Zoning Districts and Zoning Recommendations

As the State’s second largest city, Nashua contains a much greater diversity of land uses than is found in most New Hampshire communities. The City’s Zoning Ordinance and Zoning Map attempt to provide a template for the orderly development of the City. For the most part, this template has worked well; however, the bulk of Nashua’s current Zoning Ordinance dates back to the 1970’s. The Zoning Ordinance needs to be revised to bring it up to current standards and land use definitions.

The following is a brief summary of Nashua’s zoning districts. It is only a summary, and readers are advised to consult the Zoning Ordinance and Map for more specific information. The summary information provided below includes the number and functions of sub-districts in each major class (residential, commercial, industrial); minimum lot size requirements; the most common land uses; and the spatial distribution within the City. It may be helpful to refer to the Map XII - 3, Zoning Map when reviewing this section.
a. Residential Zoning Districts

There are seven residential zoning districts in Nashua: R-40, R-30, R-18, R-9, R-A, R-B, and R-C. Four of these, the R-40, R-30, R-18, and R-9 districts, are predominantly single-family residential, with the R-A, R-B, and R-C “letter districts” permitting multi-family, as well.

The R-40 district, Nashua’s rural residential district, has a minimum lot size requirement of 40,000 square feet (or approximately one acre). Most of the City’s R-40 land is found in the southwest quadrant. Some of the original R-40 land has been re-zoned or overlay-zoned for Planned Residential Developments, including Sky Meadow and Hollis Crossing. The R-40 district is also the primary district where individual wells and septic systems are in use, although sewer and water extensions have been made to some parts of the district. The R-30 district is very similar to the R-40, with the main difference being the slightly smaller minimum lot size of 30,000 square feet. Most of the City’s R-30 districts are found in the southwest quadrant, although there is a fairly large area of R-30 in the northwest quadrant near the Hollis border west of the airport. The R-18 and R-9 districts have minimum lot sizes of 18,000 and 9,000 square feet, respectively. These districts are more evenly distributed throughout the City, although the majority of the R-18 and R-9 land is found in the southwest quadrant.

The R-A, R-B, and R-C districts comprise much of the older residential sections of Nashua surrounding the urban core. The R-A district is still predominantly single-family, although duplexes are allowed by special exception. The R-B district permits duplexes by right and multi-family dwellings with three or more units by special exception. The R-C district permits all residential types by right, provided all dimensional requirements are met. For single-family homes, the minimum lot size in the R-A district is 7,500 square feet; in the R-B district it is 6,000 square feet; and in the R-C district it is 5,000 square feet. The minimum lot sizes for multi-family structures vary between these “letter zones,” and are found in Section 16-254 on page 1177 of the Nashua Zoning Ordinance (as revised 11/30/99).

Residential Zoning Recommendations

Elderly, Multi-family, and Affordable Housing:

- Due to the likely increase in demand for elderly housing, both for independent living and managed care facilities, it is recommended that the Zoning Ordinance be examined and revised, if necessary, to ensure that adequate opportunities to develop elderly housing are available. This is especially important given the projected increase in the senior population over the next 10 – 20 years.

- Consider an amendment to the Nashua Revised Ordinances (NROs) to allow Incentive Zoning, a land use tool through which the City could allow residential density in excess of that permitted in the existing or underlying zone, while requiring that a certain percentage of the additional units be affordable. This tool could be an effective means for providing affordable housing units in developing parts of the City, where most new homes are affordable only to upper-middle- and upper-income households.

Subdivision Design and Quality of the Built Environment

- Amend the Cluster and PRD sections of the Nashua Zoning Ordinance to require a larger amount of open space to be set aside than is currently required. Decrease the amount of wetlands that count towards the total open space area. The City should also consider adding incentives for the use of this development option, such as a modest “density bonus.”
• Amend the Site Plan and Subdivision regulations to address the protection of existing vegetation (especially large trees) at development sites. Clearcutting or near clearcutting of vegetation should be prohibited when subdivisions are developed.

• The landscaping section of the Zoning Ordinance should be re-assessed to see if it can be strengthened to provide more attractive and well-designed residential, commercial and industrial development. A requirement for street trees in new subdivisions should be considered.

• Consider a requirement for underground utilities which would not only improve new subdivisions aesthetically, but could save maintenance and repair costs in the long run.

b. Commercial Zoning Districts

Nashua has four commercial zoning districts: Local Business (LB), General Business (GB), Central Business (CB), and Highway Business (HB). Local Business (LB) districts are commercial areas primarily located adjacent to or within established residential neighborhoods. They are intended as convenience commercial districts that support adjacent neighborhoods. The minimum lot area is 5,000 square feet. LB zones are scattered throughout the entire City, and are found in all of the quadrants except the southwest.

The Central Business (CB) district consists of the downtown and the surrounding business area. It is a mixed-used district, which also permits some apartment and multi-family uses, as well as institutional uses. The minimum lot size is 10,000 square feet. Unlike most of Nashua’s business zones, the CB and LB districts are pedestrian-oriented as opposed to automobile-oriented. The CB district also includes many of Nashua’s historic structures. Highway Business (HB) districts are commercial areas located primarily adjacent to heavily traveled arterial roads, such as Amherst Street and the Daniel Webster Highway. The minimum lot size in this district is 20,000 square feet. General Business (GB) districts are similar to the HB districts in purpose, function, and appearance, but require a smaller minimum lot size of 10,000 square feet. The GB districts are generally found in close proximity to the HB districts, but tend to be developed as shopping centers with large parking areas (including the malls), rather than for “strip” commercial development, which characterizes development in the HB districts.

Commercial Zoning Recommendations

• The Sign Ordinance needs to be revised to account for new sign industry standards and the types of commercial and industrial development that have developed in Nashua. Several sections of the Sign Ordinance have been found to be in conflict and are difficult to interpret. A large number of requests for variances that come before the Zoning Board of Adjustment are for sign variances.

• Re-examine allowable uses within the industrial zoning districts to enable compatible, support commercial.

• The City’s commercial parking standards should be re-assessed in light of the most recent parking standards for all types of commercial land uses. For some commercial land use types, the present parking standards appear to require too few parking spaces, while for other land uses too many parking spaces may be required. In the latter situation, unnecessarily large parking lots are built, which are underutilized for most of the year.

• The landscaping section of the Zoning Ordinance should be reassessed to see if it could be strengthened to result in more attractive, well-designed residential, commercial and industrial development. Special attention should be given to adequate vegetated or fence buffers between commercial and residential land uses.

c. Industrial Zoning Districts

Nashua has three industrial zoning districts: Park Industrial (PI), General Industrial (GI), and Airport Industrial (AI). The Park Industrial (PI) districts are industrial areas that, for the most part, abut the major Turnpike interchanges,
and are adjacent to residential zones. As the name implies, they are intended to serve as locations for “light industry” and industrial parks. The minimum PI lot size requirement is 30,000 square feet. Building coverage is limited to 40% of the lot, of which 20% must be pervious (green) open space.

The Airport Industrial (AI) district encompasses a single location in northwest Nashua. As the name implies, it was intended to be the location for airport-related and support industries. In actuality, with the exception of most businesses inside the airport itself, the district has developed in a manner similar to the PI districts. The minimum lot size is 40,000 square feet, which is somewhat larger than for PI districts. Building coverage is also limited to 40% of the lot area.

The General Industrial (GI) districts are the older, traditional industrial areas of the inner city. They are often in close proximity to the Nashua or Merrimack rivers, and are generally assessable by railroad and/or local roads. Most of Nashua’s “heavy” industries are located in the GI districts. The minimum lot size requirement is 5,000 square feet.

**Industrial Zoning Recommendations**

- Re-examine allowable uses within the industrial zoning districts to enable compatible, support commercial uses.

- Consider designating the entire area of GI Zone 5 as a **Mixed-Use District**, either per Division 20 of the Nashua Zoning Ordinances as it currently applies to the GI / MU area (the Millyard and surroundings) and the CB / MU area (the downtown) or, as modified for the special needs of the area of GI Zone 5. Mixed-Use Districts can accommodate alternative uses such as residential and commercial, provided certain standards are met to ensure that new development is compatible with what already exists in the area. Any expansion or change to a commercial use that would require the submittal of a site plan would then fall under the Mixed-Use District guidelines, providing an added degree of review authority to ensure compatible development. It is recommended that any rezoning effort, whether to “out-zone” residential and commercial areas or create a Mixed-Use Overlay District, be done only after careful study.

- If a Mixed-Use District approach is not pursued, adjust the boundaries of GI Zone 5 to reflect the currently established land uses in developed areas. As noted in the general discussion, several sections of this zone are either predominantly commercial or residential. In order to have a zoning map that more accurately reflects the reality of this area, it may make sense to adjust the zoning boundaries, and zone the residential areas RB or RC and the commercial areas CB or GB.

- Nashua’s Zoning Ordinance needs to be revised and updated to reflect the diversity of current industrial uses. For example, one category in the Table of Permitted Uses, manufacturing, covers the entire spectrum from small start-up firms to large heavy industrial users. A more refined Table of Permitted Uses may lead to better land use outcomes.

- Consider whether a separate Office Park (OP) District makes sense from a zoning and land use perspective, given that several of Nashua’s Park Industrial zones accommodate primarily office / hotel uses. This zone would allow all of the uses currently permitted in the Park Industrial District, but make special provisions for higher intensity office use by allowing additional building height (perhaps a 60 foot maximum rather than the current maximum of 45 feet), and possibly making other modifications to the dimensional regulations. Such an OP zone would perhaps be best suited to the PI zone 2 (Exit 8) and PI zone 4 (Exit 1).

- Consider whether a separate Airport Industrial District still makes sense, given that the FAA already regulates the clearzones in the vicinity of the Airport, and that expansion of the Airport beyond the B&M railroad line is highly unlikely. Since the Airport Industrial district use and dimensional regulations are very similar to those of the Park Industrial district, perhaps the present AI district could be converted to Park Industrial. If concerns over building height and other dimensional regulations in the immediate vicinity of the Airport are pertinent,
then perhaps the dimensional regulations in that area could be modified somewhat from the remainder of the PI district. Before any actions are proposed to modify or absorb the Airport Industrial District into Park Industrial, it is recommended that meetings occur between City officials, the Airport Authority, and business owners in the AI District. A series of such roundtable meetings may uncover issues not considered here, and help to fine-tune any action taken on this matter.

- Research zoning and planning practices that pertain to the preservation and adaptive re-use of older industrial buildings, such as those found in Nashua’s Millyard and inner city.

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d. Mixed-Use Zoning Districts

Mixed-use districts are overlay zones that conform to the requirements of New Hampshire RSA 674:21. In Nashua, mixed-use districts encompass the underlying CB, GB, GI, and RC zoning districts in the inner city. The inherent flexibility of mixed-use districts enables mixed and innovative infill development to occur with greater ease than in the underlying zones. These districts are intended to permit creative development in areas centered on the inner city. Proposals for mixed-use development must follow a special approval process through the Nashua City Planning Board. Much of downtown Nashua is a Central Business / Mixed-Use District, whereas the Millyard is a General Industrial / Mixed-Use District.

**Mixed-Use Zoning Recommendations:**

- Consider designating the entire area of GI Zone 5 as a Mixed-Use District, either per Division 20 of the Nashua Zoning Ordinances, as it currently applies to the GI / MU area (the Millyard and surroundings) and the CB / MU area (the downtown), or as modified for the special needs of the area of GI Zone 5. Mixed-Use Districts can accommodate alternative uses such as residential and commercial, provided certain standards are met to ensure that new development is compatible with existing development. Any expansion or change to a commercial use that would require submittal of a site plan would then fall under the Mixed-Use District guidelines, providing additional review to ensure compatible development. It is recommended that any rezoning effort, whether to “out-zone” residential and commercial areas or create a Mixed-Use Overlay District, be done only after careful study.

- Consider whether there other commercial and industrial areas of Nashua could be enhanced through the Mixed-Use Overlay approach, rather than standard commercial or industrial zoning.

e. Other Zoning-related Recommendations:

**Institutional Zoning for the Hospitals and Higher Education Facilities**

- Given the concentration of medical uses at St. Joseph’s Hospital and the Southern New Hampshire Medical Center, it may be worthwhile for the City to consider implementing “Medical Arts Zoning Districts” for these two major city hospital areas. The hospitals and nearby medical offices would be the primary “permitted by right” land uses.

- Consider a “Higher Education District” around the City’s campuses similar to the Medical Arts District described above.

**Environmental Protection**

- The City should consider adopting a more effective shoreline buffer for the Nashua and Merrimack rivers than what is currently required under the New Hampshire Shoreland Protection Act. Under the Shoreline Protection Act, development can occur up to 50 feet from the mean high water mark of these rivers. A review of shoreline
• Protection ordinances from other communities should be undertaken to help determine an adequate shoreland buffer zone.

• The City should strongly consider adopting a soil erosion and sediment control ordinance to comprehensively address many of the non-point sources of water quality degradation discussed in the Water Resources Protection Plan.

• The City should re-examine the effectiveness of the Wetlands Ordinance to see if it is having its intended purpose of protecting Nashua’s wetlands. Small “other” wetlands less than an acre in size are presently not protected, despite the fact that these wetlands may be hydrologically connected to larger wetlands or streams, or of high wildlife habitat value (i.e. vernal pools, which are vital for amphibian reproduction).

• The City may want to consider adopting special zoning and site plan requirements for “brownfield” sites to encourage the best possible re-development of such sites, while ensuring environmental protection, especially of nearby water resources, such as the Nashua and Merrimack rivers and Salmon and Pennichuck brooks.

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3. Additional Topics for Further Study

The following is a summary list of several of the areas or issues recommended for further study as part of the implementation of the Nashua 2000 Master Plan Update. This list contains the most important issues recommended for further study, but is not a complete listing of all such recommendations found in this Plan. The reader is encouraged to review the recommendation sections of each Element for a complete listing of both specific recommendations and suggestions for further study.

• The City should form a Telecommunications Task Force to investigate solutions to Nashua’s telecommunications needs.

• The City should begin to undertake long-term planning for its waste disposal needs for when the Four Hill Landfill reaches capacity.

• The City should commission a new Fire Safety Needs Assessment (similar in scope to the Fire Pro report). This report should consider the standards and the need for new facilities, manpower, etc., and address such issues as response-time goals and coordination with other City agencies and nearby communities.

• As the City’s Geographic Information System (GIS) becomes fully functional and available to the Planning Department, a comprehensive inventory and assessment of all land uses in Nashua should be undertaken. This information can be used to update applicable sections of this Nashua 2000 Master Plan Update, if needed.

• The City is currently experiencing a severe shortage of rental housing. The rental vacancy rate is estimated at .4%, or nearly zero, and rents have risen dramatically as supply has dwindled. Although Nashua contains the majority of the region’s rental housing, it also contains the majority of the region’s low- and moderate-income households, which tend to be renters. As Nashua continues to evolve from a manufacturing- to a service-based economy, the gap between income and housing that is affordable to low- and moderate-income households will probably increase. The City convened an Affordable Housing Task Force in the late 1980’s. Few of the recommendations from the Task Force’s report were implemented, so perhaps it is time for a similar task force to be established to reassess the City’s current and future housing needs.

• A related study could investigate sites in the inner city that may be suitable for redevelopment for housing or
new public spaces.

- The *Nashua Downtown 2000 Plan* should be re-assessed and revised, if necessary, in light of current conditions and planning in the downtown.

- Due to the rapid rate of land consumption by development, opportunities for land acquisition for recreation, conservation, and other municipal uses will soon vanish. It is highly recommended that a study be undertaken as soon as possible to identify and prioritize parcels for acquisition, whether for recreation, conservation, or other municipal uses, such as schools or fire stations.

C. Future Land Use Plan

This section will elaborate on the recommended future land uses shown in [Map XII – 4](#), Future Land Use. It is important to note that a Land Use Plan is *not* a zoning map; it is principally a graphic depiction of ideas and suggestions for the orderly development of a community. The boundaries shown on the Future Land Use Map are meant to delineate general areas, not exact boundaries, which is the function of a Zoning Map. The Future Land Use Map can be the basis for more detailed studies that would determine appropriate land use changes, and may also be used to assess future rezoning requests.

[Map XII-4 Future Land Use Plan](#)

1. Southwest Quadrant

The southwest quadrant contains most of Nashua’s remaining residentially zoned, developable land. This quadrant still retains a rural character, which is unique in this growing city. The City adopted a *Southwest Quadrant Master Plan* in 1996, which is still in effect for that quadrant. Since that time, some of the goals, objectives and recommended actions listed in the Plan have been realized, while others have not. The City should re-examine the goals, objectives, and recommended actions of the 1996 *Southwest Quadrant Master Plan* in light of recent conditions and changing circumstances. Any goals, objectives, and recommendations found in the *Nashua 2000 Master Plan* that pertain to the *Southwest Quadrant Master Plan* should be considered complementary to those found in that earlier Plan.

As of this Master Plan Update, the Flexible Use District between Main Dunstable, Conant, and Searles roads is being developed for a 250-unit, cluster-style development, along with 80 units of elderly housing and an 80,000 square foot village commercial center. An additional 50 homes will be developed on the land retained for development north of Yudicky Farm as part of the southwest quadrant land agreement. The City will realize a net gain of 291 acres for recreation and conservation as part of this land swap, dedication, and acquisition. This is a very worthwhile land purchase by the City since it will not only provide the City with additional space for sports fields, but will also protect the pristine environment around Lovewell’s Pond.

One effect of this acquisition, however, is to further reduce the amount of developable land in the quadrant. As the demand for housing is quite high at present, the remaining vacant land in this area will become even more valuable. This situation presents the City with several options and opportunities. The land immediately west of Yudicky Farm
was designated by the Nashua Conservation Commission as a high priority for conservation through the Regional Environmental Planning Program (REPP). One criterion for ranking parcels in the REPP process is proximity to existing park and recreation land. This land is contiguous both to Yudicky Farm and the soon-to-be acquired recreation land. Hence, acquisition of this land for conservation / recreation purposes is recommended. Another significant parcel of developable land is the large parcel south of Cold Brook and east of Buck Meadow Road. Though this parcel was not assigned a similar priority, it does contain a State-listed vernal pool, so acquisition of all or part of this parcel would help to retain rural character and preserve natural habitat, as well. Funding to assist municipalities with the acquisition of their priority lands may be forthcoming from the State in the near future.

The Future Land Use Plan recognizes that outright acquisition of land may not be possible due to fiscal and other constraints. Therefore, as recommended in the Southwest Quadrant Master Plan, most of the southwest quadrant is designated for low-density, residential development. Low-density development averages out at .5 units per acre. These areas are shown in yellow on the Future Land Use Plan. Although the recommended average density for this area is .5 units per acre, this does not constitute a recommendation for 2-acre zoning. This density range can be achieved under the present R-40 (and to a lesser extent R-30) zoning. One way to protect some open space while also permitting development is through cluster development. It is recommended that the cluster development provisions of the Nashua Zoning Ordinance be revised to require a greater set-aside of useable open land. It is also recommended that the cluster provisions be revised to encourage this development option to be used more frequently. Well-placed and well-planned cluster subdivisions in the southwest quadrant would protect this area’s rural character more effectively than conventional subdivision development. Retaining a lower density of development in this corner of the southwest quadrant will be easier if sewer lines are NOT extended beyond Yudicky Farm, which is another recommendation of the Southwest Quadrant Master Plan.

It is also recommended that the scenic areas of the quadrant be mapped, and protection mechanisms developed for them in the near future. The open land along Buck Meadow and Ridge Roads, much of the land along Groton Road west of Yudicky Farm, and the land along Salmon Brook as crosses Ridge Road is all of high scenic value. These scenic areas could be protected through conservation easements, creative subdivision design, and substantial setbacks from the existing City streets. Therefore, even if the City is not able to purchase these and other parcels, it should still be possible to retain much of the open space and scenic vistas that contribute to the southwest quadrant’s rural character.

Most of the southwest quadrant has been developed, and the Future Land Use Plan reflects the current density of development found in this area. It is still recommended that the land north of Tara Boulevard and west of the Turnpike be developed for industrial use if the issue of access to this land can be resolved.

2.       Northwest Quadrant

Perhaps the most significant land use issue regarding the northwest quadrant is the use of several hundred acres of land between the Pennichuck Pond system and the Boire Field Airport. Most of this land is zoned Park Industrial. As was seen in the Industrial Element, prime industrial land is becoming a scarce resource in the City, and the Industrial Element recommends that such land not be rezoned or “given up” lightly. Industrial jobs, particularly in high-tech, are among the highest paying jobs available. As employees at these facilities spend money in the community, this sets in motion an economic “ripple effect,” which in turn bolsters employment and economic development in many other sectors of the economy.

The Future Land Use Plan attempts to balance the benefits and impacts of all land use types. In many cases, means that a compromise must be reached between seemingly conflicting land uses, values, or philosophies. The key word here is balance.
The particular land in question is also within the watershed of the Pennichuck Brook system, Nashua’s primary source of drinking water. This land was designated as a high conservation priority through the REPP process. An extensive aquifer also underlies this entire area, and Pennichuck Water Works (PWW) has indicated that the City’s water supply could be augmented through wells that could be sited on this land. If the water holding capacity of the Pennichuck Ponds is allowed to decrease through sedimentation, and is not restored through dredging and controls on non-point source pollution, then PWW may be required to augment their supply through other means. With that in mind, it behooves PWW and the City to identify the areas most valuable from a groundwater supply perspective.

For this land, the Future Land Use Plan recommends that the most environmentally sensitive areas, and the land adjacent to the Pennichuck Ponds, be designated as conservation land, with water supply protection being the most important value. The recent proposal for the City to acquire the remaining 300 acres of land in this area for recreation and conservation purposes will help preserve this environmentally sensitive area.

South of the conservation land is an area identified for low-density residential development. This area is zoned R-30, and much of the vacant residentially zoned land outside of the southwest quadrant is located here. This area would also benefit from a cluster style of development, rather than through conventional subdivision.

Although the industrial zones along Amherst Street have suffered from commercial encroachment over the years (the Park Industrial Zone more so than the Airport Industrial Zone), the rezoning of large areas from industrial to commercial is not recommended. The Industrial Element lists three options for addressing future land use along the Route 101-A corridor: limited rezoning to commercial; creation of a mixed-use district; or no change. It is recommended that these options be studied in the near future, since the corridor is coming under increasing pressure for commercial development and is rapidly approaching build-out.

Several apartment and condominium complexes are located along Route 101-A. Given the current shortage of rental units in the City, it may be appropriate to identify areas where rental housing could be developed here, either through the expansion of existing complexes or the creation of new ones. It is recommended that the City work with potential developers of rental housing to identify any impediments to the development of such housing in the City’s Zoning Ordinance or other policy documents. As the majority of the remaining residentially zoned land in Nashua is likely to be developed for single-family housing, the most appropriate locations for multi-family housing should be identified and designated for such use.

3. Central City and the Downtown

The Future Land Use Plan is not proposing any significant changes to the development patterns in the downtown and the inner city. It is recommended that alternative uses for the “opportunity sites” that were identified and mapped in the Nashua Downtown 2000 Plan be studied in the near future. Most of these sites are now surface parking lots, which is certainly not the “highest and best use” for this land. Given the current shortage of rental units in the City, appropriate locations for additional multi-family dwelling units should be identified in the near future. Such opportunity sites may also be suitable for appropriately scaled and attractive commercial development, new civic buildings such as a Performing Arts Center, or public parkland, which would benefit both the downtown and the inner city neighborhoods.

The Broad Street Parkway will make the Millyard much more visible, and perhaps more valuable, to the City. Many of the buildings in the Millyard have historic significance, and their preservation is recommended. Although many of the mill buildings are presently underutilized, it the increased access and visibility provided by the Parkway may lead to their enhancement and full utilization. Some of these structures may be suitable for conversion to rental or condominium dwelling units, as at Clocktower Place. Revitalization of the Millyard is one of the most important challenges facing the City in upcoming decades.
The site of the Globe Plaza may be suitable for redevelopment. A beautification program for South Main Street, similar to that for Main Street in the downtown, would greatly enhance this area. As mentioned in the “Gateways” section, the area in the vicinity of Bridge and Canal Streets could be developed into a much more attractive gateway into the City.

The area currently zoned General Industrial (G.I. area 5 in the Industrial Element) east of the downtown and south of the Nashua River actually functions as a mixed-use district. Commercial enterprises and residential neighborhoods are interspersed with the older industrial buildings in this zone. As residential uses and most commercial uses are prohibited in industrial zones, many of the current land uses in this zone are non-conforming. Application of a mixed-use overlay district may be a way to preserve the industrial heart of this zone, while recognizing its true function as a mixed-use area. Such a rezoning would also increase the likelihood that new rental housing could be constructed on the scattered infill sites in this zone, or in converted mill space.

4. Northeast Quadrant

The northeast quadrant of Nashua is mostly built-out at this time. There are several small pockets of land that could accommodate infill development. It is recommended that these areas be developed at the same density as their respective zoning districts.

The land north of Greeley Park is zoned General Industrial, and was recommended for medium-density residential use in the 1985 Master Plan. This area is perhaps best suited for recreational use, however, and was identified as an ideal site for additional sports fields in the 1999 Nashua Recreation Plan. The land was formerly owned by the Koppers Corporation, and was used as a railroad tie and utility pole treatment facility for many decades. The site was heavily contaminated, and clean-up activities began in earnest in the 1980’s and are ongoing. Studies are presently underway to determine if the site is clean and safe enough for recreational use.

It is recommended that the land immediately adjacent to the Merrimack River be preserved for conservation. The informal walking trails that exist in this area could eventually become part of the City’s Urban Trail Network.

5. Southeast Quadrant

The southeast quadrant has a great diversity of land uses, and is mostly built-out. It contains large areas of medium- and high-density housing, including several of the City’s largest apartment complexes. One of the City’s premier retail / commercial areas along D.W. Highway south is located in this quadrant. No significant land use changes are proposed for this quadrant.

If possible, infill sites that may be suitable for multi-family housing should be identified. Land values in this area are very high, so it is expected that most vacant parcels will be developed in the near future.
V. CLOSING STATEMENTS

Nashua is approaching the end of an era. Nashua’s adolescence, or period of rapid growth, will soon come to a close. Nashua will become a mature city early into the 21st century, when it will face a different set of issues from in its period of rapid growth. The City will soon be taking on a more “introspective” stance, turning its vision and planning efforts inward to the downtown and established residential neighborhoods. This trend has already begun with the dramatic revitalization of the downtown starting in the mid-1990’s, and the rehabilitation of many of the older neighborhoods surrounding the central business district.

In a decade or so, most development in Nashua will be redevelopment, and infill sites and underutilized buildings will become much more valuable. This will provide the City and the private sector with the opportunity to improve the function and appearance of many of Nashua’s finest older buildings, whether they are mill buildings or older residential structures. Nashua will also have the opportunity to improve the appearance and utility of its existing residential neighborhoods and commercial centers.

Nashua will continue to be a dynamic and evolving place, although this evolution and growth will differ from that of the past. The crux point in planning for the future of Nashua is NOW. Through the planning process and community involvement, the City has the opportunity to clearly envision its long-term future, and to act to bring about the best possible balance of economic growth, environmental protection, and civic culture. The long-term character of the City of Nashua will be largely determined through the planning and development that takes place in the first decade of the 21st century.
Low Density Residential: average density less than 1.5 units per acre
Medium Density Residential: average density of 1.5 to 5 units per acre
High Density Residential: average density greater than 5 units per acre

Source: Nashua Regional Planning Commission, 1994
          Nashua Planning Department Survey, 1999, 2001
Map IV - 5
Current and Potential Future Conservation Land
Nashua Master Plan 2000
Map IV - 2
Soil Constraints to Development
Nashua Master Plan 2000
Map IV - 4
Public Open Space and Natural Areas
Nashua Master Plan 2000
Map IV - 8
Soils Indicative of Wetlands
Nashua Master Plan 2000
Map V - 1
Sand and Gravel Soils in Undeveloped Areas
Nashua Master Plan 2000
1.5 Mile Radius From Fire Station

Areas of Delayed Response
(greater than 5 minutes)

Fire Districts
Map VI - 2
School Districts
Nashua Master Plan 2000
Additional Intersections Recommended For Study

Important City Arterials and Collectors

Map X - 1
Roadways Studied
Nashua Master Plan 2000
Benefits

- Reduces traffic and congestion on Amherst Street & Library Hill
- Soler road access to Fairmount – Miami Streets neighborhood
- 2.5 mile pedestrian and bicycle access along entire parkway, links Broad Street, Downtown, Mine Falls Park and North Common
- New access to 325 acre Mine Falls Park from millyard, downtown and North End including parking, boat ramp and pedestrian–bicycle trail
- Economic development opportunities for downtown and millyard
- No wetlands impacts
- Reduced traffic congestion throughout downtown area
- Improved air quality throughout downtown area
- Elimination of several hazardous material dump sites

Impacts

- Property acquisition of approximately 9 commercial structures and 16 homes
- Minor floodplain impacts from one bridge pier in river
- Additional traffic on Kimley and West Hollis Street but traffic improvements result in no adverse impacts on traffic congestion.
Map XII - 1
Sequence of Development
Nashua Master Plan 2000
Low Density Residential: average density less than 1.5 units per acre
Medium Density Residential: average density of 1.5 to 5 units per acre
High Density Residential: average density greater than 5 units per acre

Source: Nashua Regional Planning Commission, 1994
Nashua Planning Department Survey, 1999, 2001
ZONING MAP
CITY OF NASHUA
NEW HAMPSHIRE
January 2001

SYMBOL DISTRICT
R40 Rural Residence
R30 A-Suburban Residence
R18 B-Suburban Residence
R9 C-Suburban Residence
RA A-Urban Residence
RB B-Urban Residence
RC C-Urban Residence
GB General Business
CB Central Business
HB Highway Business
LB Local Business
PT Park Industrial
GI General Industrial
AI Airport Industrial
MU Mixed Use Overlay District
□ Historic Use Overlay District
□ Planned Residential Development
□ Historic Overlay District
□ Mineral Overlay District

Legend