

Open Space and Recreation Plan

for the

Town of Ipswich

2006



**The Open Space Committee is pleased to present this updated
comprehensive Open Space and Recreation Plan
to the citizens of Ipswich, Massachusetts.**

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TABLE OF CONTENTS

SECTION 1. EXECUTIVE SUMMARY	1
SECTION 2. INTRODUCTION	3
2A. Statement of Purpose	3
2B. Planning Process and Public Participation	3
SECTION 3. COMMUNITY SETTING	5
3A. Regional Context.....	5
3B. History of the Community.....	6
3C. Population Characteristics.....	7
3D. Growth and Development Patterns	8
Patterns and Trends.....	8
Infrastructure.....	10
Long-Term Development Patterns.....	15
Economy	19
SECTION 4. ENVIRONMENTAL INVENTORY AND ANALYSIS	25
4A. Geology, Soils and Topography.....	25
4B. Landscape Character	26
4C. Water Resources.....	28
Freshwater Resources	28
Tidewater Resources	29
Flood Protection and Watershed Management.....	30
4D. Vegetation	30
4E. Fisheries and Wildlife.....	32
4F. Scenic Resources and Unique Environments	35
4G. Environmental Problems.....	Error! Bookmark not defined.
General.....	Error! Bookmark not defined.
Hazardous Waste	Error! Bookmark not defined.
Landfills	Error! Bookmark not defined.
Erosion	Error! Bookmark not defined.
Chronic Flooding	Error! Bookmark not defined.
Sedimentation	Error! Bookmark not defined.
Groundwater and Surface-Water Pollution.....	Error! Bookmark not defined.
SECTION 5. INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST	Error! Bookmark not defined.
Handicapped Access.	Error! Bookmark not defined.
SECTION 6. COMMUNITY GOALS	Error! Bookmark not defined.
6A. Description of Process	Error! Bookmark not defined.
6B. Statement of Open Space and Recreation Goals.....	Error! Bookmark not defined.
SECTION 7. ANALYSIS OF NEEDS.....	Error! Bookmark not defined.
7A. Resource Protection Needs	Error! Bookmark not defined.
7B. Community Open Space and Recreation Needs	Error! Bookmark not defined.
7C. Open Space and Recreation Management Needs.....	Error! Bookmark not defined.
SECTION 8. GOALS AND OBJECTIVES	Error! Bookmark not defined.
GOAL 1: PRESERVE THE HISTORIC AND SCENIC CHARACTER OF THE TOWN IN CONJUNCTION WITH THE 2004 TOWN CHARACTER STATEMENT	Error! Bookmark not defined.

GOAL 2: PROTECT AND ENHANCE DRINKING WATER SOURCES **Error! Bookmark not defined.**

GOAL 3: PROTECT AND MANAGE CRITICAL NATURAL RESOURCES **Error! Bookmark not defined.**

GOAL 4: PRESERVE SIGNIFICANT LAND FOR OPEN SPACE AND RECREATION..... **Error! Bookmark not defined.**

GOAL 5: ENHANCE RECREATIONAL OPPORTUNITIES APPROPRIATE AND ACCESSIBLE TO ALL AGE GROUPS.....**Error! Bookmark not defined.**

GOAL 6: ENHANCE EDUCATIONAL PROGRAMS TO TEACH OPEN SPACE VALUES **Error! Bookmark not defined.**

GOAL 7: PROMOTE A COOPERATIVE AND REGIONAL APPROACH TO OPEN SPACE AND RESOURCE PROTECTION.....**Error! Bookmark not defined.**

SECTION 9. FIVE-YEAR ACTION PLAN**Error! Bookmark not defined.**

GOAL 1: PRESERVE THE HISTORIC AND SCENIC CHARACTER OF THE TOWN IN CONJUNCTION WITH THE 2004 TOWN CHARACTER STATEMENT **Error! Bookmark not defined.**

Objective 1-1. Retain and promote agricultural lands and uses in Ipswich..... **Error! Bookmark not defined.**

Objective 1-2. Retain and protect natural and historic scenic features and archaeological sites in Ipswich. **Error! Bookmark not defined.**

GOAL 2: PROTECT AND ENHANCE DRINKING WATER SOURCES **Error! Bookmark not defined.**

Objective 2-1. Protect water supplies from pollution.....**Error! Bookmark not defined.**

GOAL 3: PROTECT AND MANAGE CRITICAL NATURAL RESOURCES **Error! Bookmark not defined.**

Objective 3-1. Permanently protect salt marshes and inland wetlands, particularly vernal pools, from the effects of development.....**Error! Bookmark not defined.**

Objective 3-2. Continue and enhance protection of wildlife habitat and riverways...**Error! Bookmark not defined.**

GOAL 4: PRESERVE SIGNIFICANT LAND FOR OPEN SPACE AND RECREATION..... **Error! Bookmark not defined.**

Objective 4-1. Develop inventory, assessment, prioritization and reporting of open space and recreation lands.....**Error! Bookmark not defined.**

Objective 4-2. Continue or establish effective funding mechanisms for protection of open space. **Error! Bookmark not defined.**

Objective 4-3. Manage town-owned or -controlled open space.....**Error! Bookmark not defined.**

GOAL 5: ENHANCE RECREATIONAL OPPORTUNITIES APPROPRIATE AND ACCESSIBLE TO ALL AGE GROUPS.....**Error! Bookmark not defined.**

Objective 5-1. Improve and increase recreational facilities, public and private, to meet current and future needs. **Error! Bookmark not defined.**

Objective 5-2. Improve access to recreational facilities in accordance with the Americans with Disabilities Act.....**Error! Bookmark not defined.**

Objective 5-3. Control recreational uses to protect the integrity of land and water resources. **Error! Bookmark not defined.**

GOAL 6: ENHANCE EDUCATIONAL PROGRAMS TO TEACH OPEN SPACE VALUES **Error! Bookmark not defined.**

Objective 6-1. Maintain communication with the Ipswich public schools to encourage integration of open space and conservation values in curricula.**Error! Bookmark not defined.**

Objective 6-2. Maintain regular communication links with citizens to promote the town’s open space objectives. **Error! Bookmark not defined.**

GOAL 7: PROMOTE A COOPERATIVE AND REGIONAL APPROACH TO OPEN SPACE AND RESOURCE PROTECTION.....**Error! Bookmark not defined.**

Objective 7-1. Assure collective and cooperative commitment by town departments, boards and staff to accomplish the objectives of this open space plan.**Error! Bookmark not defined.**

Objective 7-2. Coordinate Ipswich open space and recreational planning with actions and programs on a regional basis.....**Error! Bookmark not defined.**

SECTION 10. PUBLIC COMMENTS: LETTERS OF ENDORSEMENT..... **Error! Bookmark not defined.**

SECTION 11. REFERENCES**Error! Bookmark not defined.**

SECTION 12. MAPS.....**Error! Bookmark not defined.**

APPENDIX A: PRESENT IPSWICH OPEN SPACE COMMITTEE MEMBERS.....**Error! Bookmark not defined.**

APPENDIX B: ...TOWN OF IPSWICH SURVEY FOR RESIDENTS: MANAGEMENT OF GROWTH AND PROTECTION OF OPEN SPACE (1998)**Error! Bookmark not defined.**

APPENDIX C:.....ACCOMPLISHMENTS UNDER THE 2000-2004 OPEN SPACE PLAN
Error! Bookmark not defined.

GOAL 1: PRESERVE THE HISTORIC AND SCENIC CHARACTER OF THE TOWN **Error! Bookmark not defined.**

GOAL 2: PROTECT AND ENHANCE WATER RESOURCES.....**Error! Bookmark not defined.**

GOAL 3: PROTECT AND MANAGE OTHER CRITICAL NATURAL RESOURCES **Error! Bookmark not defined.**

GOAL 4: PRESERVE SIGNIFICANT LAND FOR OPEN SPACE AND RECREATION..... **Error! Bookmark not defined.**

GOAL 5: ENHANCE RECREATIONAL OPPORTUNITIES APPROPRIATE AND ACCESSIBLE TO ALL AGE GROUPS.....**Error! Bookmark not defined.**

GOAL 6: ENHANCE EDUCATIONAL PROGRAMS TO TEACH OPEN SPACE VALUES **Error! Bookmark not defined.**

GOAL 7: PROMOTE A COOPERATIVE AND REGIONAL APPROACH TO OPEN SPACE AND RESOURCE PROTECTION.....**Error! Bookmark not defined.**

APPENDIX D:.....LIST OF ABBREVIATIONS
Error! Bookmark not defined.

APPENDIX E: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST
Error! Bookmark not defined.

APPENDIX F:COMPLIANCE WITH HANDICAPPED ACCESS REQUIREMENTS
Error! Bookmark not defined.

APPENDIX G:.....FORM USED BY OPEN SPACE COMMITTEE TO RANK KEY PARCELS CONSIDERED FOR PROTECTION.....**Error! Bookmark not defined.**

SECTION 1. EXECUTIVE SUMMARY

This document details the 2006-2010 Open Space and Recreation Plan for the Town of Ipswich, the fifth such plan prepared by the Open Space Committee. This latest effort celebrates the accomplishments in the town's past and builds on its successes (**APPENDIX C**). While adhering to its formal mission, the 2006-2010 plan envisions relying on the same effective collaboration of officials, boards and individuals to implement actions adapted to emerging community needs.

The goals of the new plan remain as inclusive and exciting as those of the previous plan. The mission continues to be to:

- Protect historic, scenic water and other natural resources
- Preserve open space
- Provide and enhance recreational opportunities
- Educate the public on the value of open space
- Promote cooperative efforts to preserve open space and recreation.

However, the specific actions to address these needs have evolved over the years. These are

summarized in the five-year action plan (**SECTION 9**). This plan emphasizes realistic and achievable actions for the next five years.

The text includes an updated inventory of open space and recreation resources (**APPENDIX E**) and a set of color-coded maps generated from the town's Geographic Information System (GIS) (**SECTION 12**). The inventory and maps reveal the careful, comprehensive planning and protection of the past five years and provide a clear road map of priorities for the next five years. These priorities were based on community needs as assessed by committees, boards, initiatives and studies undertaken during the previous five years (**SECTION 7**).

Finally, the plan seeks to involve a diverse group of constituents who will commit themselves to achieving as many of the actions as possible. These constituents represent nearly all of the administrative and governing offices, boards and committees of the town, as well as a myriad of private and volunteer organizations. This five-year plan will succeed with clear identification of the open space and recreation needs of the town, a thoughtful plan for addressing those needs, and the commitment of the most diverse advocacy groups to the actions needed.



SECTION 2. INTRODUCTION

2A. Statement of Purpose

During the past 20 years Ipswich, like many towns in Massachusetts, has experienced an increasing demand on its land and other natural resources, and an increasing demand for recreational opportunities due to population growth and the resultant development pressure. These demands have emphasized the need for careful and continual planning to protect the town’s rich heritage of abundant natural resources and recreational pursuits.

The 2006-2010 open space and recreation plan provides the latest summary of the state of Ipswich’s open space and recreation resources, and the most up-to-date plan for protecting and improving these resources in the years to come. The open space plan serves as the town’s most comprehensive guide to open space and recreation protection, and is relied upon in most local land use and protection decisions. A key accomplishment of the past five years has been creation of a process for identifying, evaluating and prioritizing parcels of land that should be considered for protection. The result is a detailed and actively maintained inventory of candidate parcels. This inventory ensures that decisions about open space and recreation lands are based on a thorough understanding of a property’s condition, features and value. The new open space plan seeks to refine this process.



Funding is an essential component for success. The plan qualifies the town for state conservation funding. This has been an extremely valuable resource through which the

town has accomplished significant open space protection projects. One of the most important events of the past five years occurred in 2000, when Ipswich residents passed a bond authorization for the acquisition and protection of open spaces. This \$10 million bond has provided the majority of funds for the large open space and recreation projects the town has undertaken. The bond funds have enabled the town to apply for matching outside funds and leverage other funding sources. The new open space plan will continue to ensure that funding options are open to the town to continue significant open space and recreation projects.

2B. Planning Process and Public Participation

The 2006-2010 open space plan was developed through the efforts of the Open Space Committee with extensive input from other town boards and committees, and the public. The framework of previous plans has been effective and is retained in the new plan. The Open Space Committee concentrated on reviewing and updating the goals, objectives and actions of the five-year action plan. This required input from many people, town boards and town staff over the past year and was achieved through 15 years of monthly public meetings of the Open Space Committee. Focused group and individual meetings with town staff, boards, committees, members of the public, and other public and private organizations involved in open space and recreation issues also contributed to the process. Section **7B** details the needs identified during this input process.

Revision of the previous plan began in earnest in 2004 when it was distributed among the Open Space Committee members to review

with boards and committees who had action assignments. The committee compiled the results of this survey, which in turn became the basis for further discussions in establishing a new five-year action plan. A draft was then submitted to all boards for review and comment. Once comments were received and incorporated, an overall draft open space plan was developed under the direction of the Open Space Committee. This draft was presented to key town boards such as the Board of

Selectmen, Planning Board and Finance Committee for formal comment. The draft plan was then submitted to all other appropriate town boards and offices for review and comment. Finally, all comments were reviewed by the Open Space Committee and incorporated into the final plan. Letters of support were gathered, the final report was submitted to the state for approval, and the plan was published and distributed.

SECTION 3. COMMUNITY SETTING

3A. Regional Context

Ipswich is large in area, thirty-three square miles, with a well-defined in-town residential and business district. It is comprised of industrial sections, scattered commercial enterprises and dispersed residential developments. Ipswich has a variety of employment opportunities in town and in surrounding communities and, situated thirty miles northeast of Boston, is not a typical suburb. With commuter rail service and easy access to state Route 128, U.S. 1 and Interstate 95, Ipswich has become a commuting suburb. The population is culturally and economically diverse.

The Ipswich River flows from thirty-five miles west to the town center, where a dam marks the change from fresh water to the head of a tidal estuary. It continues through the town's expansive salt marshes to empty into Ipswich Bay. Forests, fields and farmlands have been important to the town's economy and landscape, as they are to most towns, but the river and the coastal lands were and are the crucial determinants of Ipswich's settlement, subsequent development and continuing identity. Neighboring towns divert water from the Ipswich River upstream of town for their water supplies, negatively affecting the flow through town, especially in summer. Runoff from upstream development affects the quality of coastal salt marshes that adjoin those of towns to the north and south. Keeping these productive areas healthy is thus a regional task.

Ipswich has become an important regional resource in the tourism industry. The town has always had Crane Beach Reservation, a five-mile barrier beach and the crown jewel of The Trustees of Reservations (TTOR) properties. But many other critical resources are

starting to attract regional and statewide attention. These include Willowdale State Forest (containing miles of the Bay Circuit Trail), and Appleton Farm (almost 1,000 acres) and Greenwood Farm, the two new properties of TTOR being managed in part for recreational use. Strawberry Hill and Dow Brook Conservation Area are two new properties purchased by the town with open space bond funds. In addition, Marini Farm, Russell Orchards and Wolf Hollow (an educational facility featuring wolves) are important resources. The construction downtown of a pedestrian bridge over the Ipswich River in 2005 and completion of the Riverwalk in several years will add to the list of regional attractions.

These resources are important attractions to day and overnight visitors. In addition, varied neighborhood facilities exist to meet the recreational needs of a diverse population. Other large parcels of land, privately- or institutionally-owned and maintained, contribute to the rural character of the town and provide some local employment. Protecting these open spaces is necessary to preserve the balance of the town's varied land uses.

The establishment of the Essex National Heritage Corridor Commission is evidence that the natural and cultural resources of Ipswich and the surrounding area are also considered to be of national significance. The commission has developed tourist routes, points of interest and scenic byways as a national resource with the assistance of federal funds. The beauty of Ipswich, and of Essex County as a whole, is the basis for the cultural activities that have developed here and is a key component of the tourist attractions.

Resources within Ipswich are important to the region. These include Crane Beach Reservation and a portion of barrier beach on the Parker River National Wildlife Refuge. Willowdale State Forest, extensive properties owned by TTOR, two privately-owned farms

providing pick-your-own and farmstand amenities, a canoe rental facility on the Ipswich River, and many areas with hiking trails and wildlife habitat are other important resources within Ipswich. The 4,500 acres of salt marsh and the important coastal Area of Critical Environmental Concern (ACEC) raise the natural and recreational resources in Ipswich to regional, state and national prominence. This has been validated by previous federal investments in the Parker River National Wildlife Refuge. Acquisition of key coastal properties for wildlife protection in concert with town funds and with funds of several land trusts is also important. Current fiscal crises at all levels jeopardize continued partnerships.



settlement that developed into a prominent 17th-century coastal town. Wharves, warehouses and mills filled the waterfront and export business thrived. Ipswich residents were active in the political and judicial activities of the colony.

Ipswich suffered a major economic decline during and after the Revolutionary War.

Commerce was disrupted, common land was sold, and parts of the town broke away to form new towns. The river and its access were not suitable for the expanding 19th-century maritime trade. Growth, prosperity and change seemed to bypass Ipswich. Some speculate that this is perhaps why the town

has so many well-preserved 17th- and 18th-century houses, since residents couldn't afford to tear down and rebuild their homes.

3B. History of the Community

The coastal and riverine areas now called Ipswich have been inhabited by humans for thousands of years. A Paleo-Indian site used 9000 years ago was discovered at the confluence of the Egypt River and Bull Brook, and is the earliest settlement found in Massachusetts. Other artifacts discovered at Great Neck and along the riverbanks have been identified as belonging to the later Archaic (8000-5000 years ago) and the Woodland (2000 years ago) periods.

The same resources that attracted Native Americans to the Ipswich area also convinced settlers of the Massachusetts Bay Colony that this would be an ideal place for a new community. Here they found water, food and fuel, as well as a source of water power, and had the advantages of water transportation. In 1633 a group led by John Winthrop Jr. established a

In addition to the long-present grist and sawmills, a hosiery mill was built in 1868 using river-water power. By the beginning of the 20th century, this mill had developed into the largest stocking mill in the country. Its growing labor needs were met by small waves of immigrants, first from Nova Scotia, Ireland and Quebec, and later from Poland and Greece. Because of the fertile marshes and tidal flats, clam digging became an important source of income. The landscape and location also attracted summer residents. Ipswich remained a small country town until World War II.

The growth and development of Ipswich as a larger town came with the ascendance of the automobile, the resultant outward expansion of the metropolitan area, and the commuter boom. Population growth, and industrial and commercial expansion occurred and continue

today. The town's response over the last half-century has been to reorganize town government, to institute planning and zoning to guide growth, and to expand and improve town services. These efforts continue as new needs and challenges are recognized. Ipswich is now at a point where pressures from regional and local population growth and development demand new and more effective methods for determining the town's most desirable future development.

3C. Population Characteristics

While the population of Ipswich has grown relatively slowly over the last two decades, a number of population characteristics have changed within these years. The people appear to have become wealthier and older. With the high cost of living in Massachusetts, new demands have been placed on public as well as private and/or non-profit recreational facilities and providers. The demographic changes for the over-65 and under-17 age groups are particularly important. These groups have increased in numbers relative to the other age groups and have leveled out the groups' proportions of the population compared to other age categories.

The latest U.S. Census collected in 2000 indicates a population in Ipswich of about 12,987, up from the 11,873 at the 1990 U.S. decennial census. In 2000, approximately 23 percent of the population was between the ages of 0 and 18, and 15.6 percent was over 65. The overall population growth rate between 1990 and 2000 was 9.4 percent. Specific age categories had varying growth rates, with the highest rate occurring in the 45-64 age group (45.2 percent) and the lowest rate in the 18-24 age group (a decrease of 27 percent). Ipswich is increasingly becoming a town of middle-aged residents whose recent high school graduates have left the community. This pattern of population change, however, is occurring on a national basis with the aging of the baby boom cohort.

The rate at which new households are forming suggests that a very serious effort is needed to plan for and direct the location of new housing. With an almost 10 percent growth rate during the last decade, and developable land spread throughout town, it is important for the town to go beyond identifying the parcels to be protected and using scarce funds to acquire land. It must adopt other options such as down-zoning or transfer of development rights that can move toward saving important sectors of town.

Household composition has also changed during the last decade, suggesting that these shifts must be taken into account when considering housing development, land protection and development of recreational facilities. There has been a 26 percent increase in non-family households, which are primarily single people or unmarried people living as roommates. With the movement to smaller household sizes, more housing units will be required to accommodate the population in town. This demographic change will maintain the demand for increased housing production in Eastern Massachusetts. This can result in further pressure on land resources if Ipswich does not continue its efforts to produce units in more dense development patterns. The younger people living alone will likely seek active outdoor pursuits or the type of organized recreation and physical training available at the Ipswich YMCA. The 45 percent increase in residents 45-64 years old has already been noted above. These active elders will continue to demand some of the same outdoor and recreational activities they desired before they started families. As this large cohort ages, increased activities for seniors will be an important consideration.

Enrollment growth in the Ipswich schools casts a different light on population growth in the town as a whole. Recent enrollment numbers show little increase in the lower grades and larger increases in the higher grades. There is a 26 percent increase of town residents in the 5-17 age range for the decade

from 1990-2000. This information suggests that families with older children whose parents have been able to save over the years for a new home are purchasing homes for sale in town.

The 5,290 households in town had a median household income of \$57,284 in 1999, the year reported in the 2000 U.S. Census. Of these, 7.1 percent of households fell below the federal poverty level. Ipswich is a mixed-income community, with residents having somewhat higher incomes than Essex County and the state. The significance of the population financially committing itself to protect natural resources of regional and national significance is very important. However, local financial resources need significant fiscal participation from the regional, state and national level to protect the resources in town that are significant to regional, state and national populations. During a period where state and federal funds to assist in such programs is diminishing, it becomes even more critical that communities like Ipswich step up and undertake aggressive land protection themselves. At the same time, lobbying the state legislature and Congress for increased funding should be part of local land protection activities.

Economic and age factors together affect the types of recreational demands and services provided to town residents. With a growing number of elderly residents on fixed incomes in future years, increased demand for senior programs such as bus trips and other social functions is probable. Additionally, more passive forms of recreation such as walking and birdwatching have wider appeal. Fortunately the town's natural features support these diverse types of recreational pursuits.

The need for activities in the under-17 age range has also increased. With the economic need for families to earn two incomes, some recreational programs have become quasi-day care. Additionally, with 7.1 percent of families below the federal poverty level, public facilities and programs are crucial in satisfying

recreational needs of residents unable to afford any expenses for recreational activities. The state-, federally-, town- and privately-owned lands within Ipswich are able to accommodate some of these needs, but structured programs are struggling with limited local and state funds, and many programs are oversubscribed. While local recreational program providers have been working to meet these needs, funds are limited and solutions must be creative to meet changing demands.

3D. Growth and Development Patterns

Patterns and Trends

The lives of European settlers in Agawam (the original name for Ipswich) centered first in the High Street/East Street areas and on the opposite banks of the river, with farms located along the major roadways in Ipswich. During the 1600s the town thrived on resources provided by the river and marshes. By 1700 there were about 2000 residents, grist and saw mills, wharves and warehouses. The town exported staves, clapboards, beef cattle, hay, salt hay, vegetables, and products of the sea. Ipswich had to sell much of its common land to pay war debts, and Hamilton and Essex broke away from Ipswich after the Revolutionary War. At the same time, the development of the Newburyport Turnpike (now U.S. 1) bypassed the town center.

The population remained stable for the next two centuries, gradually increasing to around 4000 at the time of industrialization in the late 19th century. Ipswich's transition to a mill town during this time brought with it a significant increase in mill and new housing development in the present downtown area. At the same time, development was occurring along the outlying roadways on a scattered basis.

While rail service to Boston accompanied the industrial revolution, the widespread ownership of automobiles led to

another increase in population and housing after World War II. During this period the character of Ipswich changed. It developed from a compact area of very old homes and those built during the industrial revolution into a town with the population spread out in homes fronting on existing roadways or in small subdivisions outside the center.

Population growth in Ipswich has been steady at about 10 percent per decade over the last two decades. With the demand for more elbow room, the town has experienced a trend toward a lower number of residents in each household. There has been, however, an increased need for housing in spite of the slower population growth rate. New roads built during the housing boom of the 1950s and '60s have been extended and many new housing units added. Scores of seasonal units on Jeffreys Neck (which includes Great Neck and Little Neck) have been converted to year-round residences. Many new homes have been built on Great Neck, to the point where the Neck has become one of the most densely populated sections of Ipswich--and it is surrounded by the Ipswich-Essex Bay ACEC. The consequences of this situation are discussed below in the section on sewer service.

The special qualities of Ipswich and the excellent real estate market of the mid- 1980s through the early 2000s led to several new subdivisions, most of which consist of mid-range to more expensive homes. Some of these projects were built in valuable open space, consuming farmland, meadows and forests, or on scenic hilltops with ocean and salt marsh views. Many residents are concerned about identifying unique parcels under threat of development and formulating a process for protecting them.

New state initiatives encouraged the state and communities to adopt smart growth procedures in their bylaws, principles and project reviews. So Ipswich adopted a set of smart growth principles in the *Ipswich*

Community Development Plan (CDP) in 2003. These principles are:

1. "Provide a range of housing opportunities for residents of all income levels and abilities."
Different housing choices are essential for Ipswich to remain a diverse community and for the town to continue to be able to welcome a variety of new residents.
2. "Reduce sprawl by limiting excess roadways, and by evaluating and controlling the growth impacts associated with sewer extensions."
New growth should be concentrated in and near the downtown or in compact configurations elsewhere in town. Extensive new roads and spread-out development patterns are generally inconsistent with these smart growth principles and should be kept to a minimum through regulations and incentives.
3. "Provide a variety of transportation choices. Develop and enhance non-motorized travel options by developing new paths and trails, connecting existing paths and trails, and making roadways and intersections more pedestrian-friendly."
With a compact town center and commuter rail service, Ipswich is well-positioned to reduce its use of automobiles and increase its use of other travel modes.
4. "Protect the village character and strong 'sense of place' of downtown Ipswich, with its locally-owned businesses, mix of uses, healthy economy, pedestrian-friendly environment, historic resources, multi-modal transportation, and prominent role in community life."
Where applicable, new development proposals and proposed changes to town

bylaws and regulations should work to enhance these positive qualities of downtown Ipswich.

5. “Enforce the highest standards when reviewing development projects that affect the town’s critical natural resources, such as the Great Marsh, the Parker River-Essex Bay ACEC, the threatened Ipswich River, sites of historical and archeological value, and other resources that are threatened or endangered, such as contiguous habitats.”
6. “Increase the town’s ability to influence and direct development consistent with these smart growth principles by strengthening the planning and review processes, particularly through the use of incentives. Make development decisions predictable, fair and cost-effective.”
7. “Support the survival of resource-based businesses, as they are critical to the character of the town, the conservation of open space, and the livelihood of local residents.”
Shellfishing and farming are vital elements of the town’s sense of identity and sense of place. Future town policies and development decisions should be favorable to the continuation of these activities.
8. “Ensure that the town’s population does not exceed the carrying capacity of its environment, infrastructure and services by anticipating future growth and working actively to reduce future growth potential while at the same time planning for increased services as feasible.”
9. “Work toward making Ipswich a more ecologically sustainable community through education and incentives to reduce water and electric usage, better manage the town’s septic systems and

wastewater, and encourage the use of alternative energy sources.”

It is important to integrate these principles in this open space plan. The plan’s goals, objectives and action items are designed to be consistent with these tenets. They also emphasize the need for all town boards and committees to consider these principles when making decisions on development, projects that affect open space and the natural environment, and the development of recreation resources.

Infrastructure

--Transportation

With the advent of faster automobiles able to travel longer distances, Ipswich’s accessible coastal location 30 miles north of Boston has made it a desirable commuter suburb. The ongoing improvements to commuter rail service to Boston have further enhanced this attractiveness. The older transportation routes in town, U.S. 1, state Routes 1A and 133, and Linebrook and Topsfield roads, have all been upgraded and can, in part, be driven at fairly high speeds. This has made these roads somewhat less desirable for residential use, but has maintained the ability of residents to commute greater distances to work. Conversely, it has stimulated the commercial and light industrial development of some of these corridors, providing more jobs in town.

The presence of the MBTA commuter rail station has always been an important factor to commuters moving to town. The extension of the line to Newburyport in recent years has made parking more available and access to the train more reliable for Ipswich residents. The town is currently seeking ways to make the MBTA more accessible within the community. After ten years of planning, construction of a footbridge and walkway from the old town hall/police station area with public parking to the MBTA station finally began in 2004.

Pedestrians will have better access to the MBTA station and will be able to use additional commuter parking in this public lot. The completion of the pedestrian infrastructure will also put added emphasis on pedestrian activities.

With the completion of the CDP, Ipswich has started to implement the plan by making efforts to increase the density of development in the downtown area. The increased density is then used to fund acquisition of land in other areas of town with contiguous open space. These efforts have had spotty success at Town Meeting, but emphasis remains on concentrating development in the downtown area and around the MBTA station.

The town's acceptance of the Great Estates Preservation Zoning Bylaw is the beginning of efforts to implement smart growth/sustainable development principles. In addition, open space zoning is being used to reduce the construction of new road mileage to serve proposed residential development. This has been achieved for the Partridgeberry Place development on Boxford Road, but has been less successful for an approved development on Heartbreak Road and one under consideration on County Road.

The CDP provides some information on road congestion and accident rates, two conditions that will definitely worsen with growth in population and residential units. A majority of accidents occur on arterial and major collector roadways that serve commuters. Most accidents occur on Linebrook Road, High Street/Lord's Square and County Road. The most heavily used areas are County Road, Topsfield Road and Washington Street. Much of this traffic needs to move through the downtown area that is already a major point of congestion. Two of the main accident locations are in the downtown area, at Topsfield Road and Central Street, and at Liberty Street and Central Street. There are no desirable options for directing traffic away from this area. The only

option is High Street, which has the largest inventory of First Period homes in town.

Any population growth will add to existing traffic congestion and dangerous intersections. The situation must be carefully monitored as the town continues to approve large housing developments, whether in the downtown area or around the perimeter. While concentrating development in the downtown is desirable, additional growth there directly exacerbates traffic congestion and safety in that area.

--Water Supply System

Almost the entire town has public water service. The town water supply is drawn from small reservoirs and groundwater wells that are located in the Ipswich River and Parker River watersheds (the latter including Dow and Bull brooks, the Egypt River and Muddy Run).

The water supply system was constructed over a period of decades, starting in the late 1800s. The main sources are the reservoirs that impound the flow of Dow and Bull brooks. The expansion of Bull Brook Reservoir and construction of a water treatment plant were completed in 1988, both increasing the supply of available water and improving the quality.

Only one small area of town west of U.S. 1 has no public water supply. Homes are supplied by private wells. In this area, access to water could limit development, although so far this has not occurred. In other areas, the absence of standpipes to store water results in inadequate water pressure for fighting fires. In recent years, the town has often had to issue water conservation restrictions or bans. To date, no efforts have been made to study the extent to which the almost annual need for conserving water during dry spells should limit future users from connecting to the system.

The town's water withdrawals cause losses to the natural waterways. The lower section of Bull Brook and the Egypt River are sometimes dry for months at a time. Sections of the Ipswich River also dry up due to the cumulative impact of withdrawals of Ipswich and 13 other communities.

Ipswich officials have recognized problems created by seasonal water shortages and have investigated the feasibility of various options for increasing the water supply. These include raising the height of the water supply dam by several feet to increase the capacity of the reservoir or digging new deep bedrock wells. Either action would need extensive work in permitting and funding. Ultimately, the work may not be approved because of significant environmental concerns about impacts on wetlands, streams and fisheries, and current over-allocation of the source watersheds.

Presently the town is exploring discharging treated wastewater on land in the Egypt River watershed to increase groundwater in areas directly supplying drinking water, including the Dow Brook and Bull Brook watersheds. Ipswich is also exploring the relocation of Brown's Well away from Route 1A and into an area that might produce a greater yield. The parcel of land to which the well might be relocated has been purchased using funds from the open space bond.

Because the town's water withdrawal exceeds its original allowance under state law, the Water department has been operating under an Administrative Consent Order (ACO) from the Department of Environmental Protection (DEP). A water withdrawal permit was issued in 2002 and was appealed by the Ipswich River Watershed Association. The appeal alleged that DEP-authorized withdrawals exceeded the safe yield of the source watersheds in violation of the Water Management Act. Since the withdrawal permit is not finalized, the town is still operating under an ACO that sets the daily water withdrawal maximum at 1.18 million gallons

per day (mgd). This authorized volume is specifically under appeal and thereby tentative until fully approved.

There has been considerable discussion on whether the Ipswich water supply is adequate for additional demand from new residential developments, and from business and institutional growth. Ipswich has instituted water conservation measures over the last several years, including leak repairs, watering bans and pricing structures, to reduce consumption and determine whether there is sufficient capacity for growth. Outdoor water bans were often put in place in the late 1990s and early 2000s during the summers to reduce peak demand when supplies are limited. The town restructured water rates to provide an incentive to decrease demand during the summer months. Ipswich has successfully implemented these and other water conservation efforts. However these efforts must be expanded through vigorous public education about water conservation and conservation practices. The town's water demands have decreased since the imposition of the ACO, from a high of 1.32 mgd from 1995-1999 to an average of 1.12 mgd from 2000-2002.

Several towns in Massachusetts have successfully reduced overall demand, even in the face of growth, through imposition of a water demand offset program (also called a water bank). This program requires two gallons of water savings for every one gallon of projected demand from new development or expansions of existing buildings and facilities. In some cases, a fee is required with the building permit. In other cases the program is funded through water rates. The town is considering such an option. With the approval of a comprehensive permit for the Chapter 40B project by the YMCA of the North Shore, studies were undertaken to determine the adequacy of town water to serve the needs of the project. It was determined at the time that the water supply was adequate. This may have resulted from important conservation measures

that have been instituted by the town, but it did not factor in the uncertainty about the results of the water management appeal.

Ipswich has allowed extensions of the water lines and has agreed to serve new large developments. Water lines have been extended to New England Biolabs, a 60,000- square-foot research and development facility located on Route 1A on the Hamilton line. This facility has tied into the public water supply for both employee and industrial uses. To gain development approval, the owners made an agreement with the town to save 60 acres of open land (23 acres of upland and 37 acres of wetland), including land for trails and soccer fields for town use.

The Turner Hill development, also served by town water, consists of an 18-hole golf course and associated clubhouse, a 25-room hotel with dining facilities, and 181 units of housing. This development is estimated to consume approximately 100,000 gallons per day. The availability of water during the early permitting phases for this project was of central importance. The town assured Turner Hill developers that it had adequate water to meet the projected potable water demand. However, water needed for irrigating the golf course is provided by private wells. These wells draw from the same water sources as the town's public water supply. Turner Hill's water withdrawal permit is also under appeal to the DEP.

In summary, the public water supply system of Ipswich draws water from sources in the Ipswich River and Parker River watersheds. These source watersheds experience high stress as a result of water withdrawals. While Ipswich's water withdrawal permit is under appeal, the town is operating under an ACO. A series of successful water conservation measures has been implemented and should continue to maximize water efficiency. Implementing a water bank may assist in accommodating future demand while reducing

the damage that water withdrawals cause to the environment.

--Sewer Service

There are approximately thirty miles of sewers in town, largely in the central area, with about 30 percent of the town's population connected (**MAP 1**). Major expansions occurred in 1975 and 1977, commensurate with the completion in 1977 of the town wastewater treatment plant. The plant provides secondary treatment of sewage. The Newmarch Street area was sewered in 1985 and Kimball Avenue in 1996. Most recently, sewer lines have been extended about a half-mile out Essex Road (Route 133) to facilitate further commercial development and to accommodate an affordable housing project being built by Habitat for Humanity. Lines have also been extended about 2000 feet up High Street to serve a multi-family residential development permitted under MGL Chapter 40B (not requiring town meeting approval under the General Bylaws, Chapter XV, Section 16). Several existing activities fronting on this extended sewer have connected to it.

A proposal to sewer the Mitchell Road industrial area, approved by town meeting, has been withdrawn. Less than the requisite 75 percent of property owners were willing to commit to paying their prorated shares of the full cost of the extension.

The treatment plant is designed to treat the wastewater of about 15,000 residents or up to an average of 1.8 mgd. The design peak hydraulic flow capacity is 5.3 mgd. At present the plant is operating at about one-half this average capacity. The peak flow recorded at the plant is 2.9 mgd, but this is constrained by the inability of the delivery system to transport all system flows to the plant. Adequate hydraulic capacity probably exists at the treatment plant, even during periods of heavy rain when infiltration and inflow increase the hydraulic flow. The plant also is able to treat septage

pumped from septic systems in Ipswich. Septage is held in a separate waste storage tank and is treated along with the wastewater.

The degree of treatment provided by the plant was significantly upgraded in the late 1990s to meet more stringent requirements of the facility's new discharge permit. This has been accomplished by increasing the capacity to de-water digested sludge. By introducing an effective composting process provided by a contractor, further reduction of biosolids and their conversion to a useful agricultural product is possible. The biological treatment process for the wastewater has also been upgraded. Disinfection is now accomplished by ultraviolet irradiation of the effluent rather than by chlorination/dechlorination. The chlorination has a negative impact on sea life in the salt marsh. The effluent is discharged to a ditch tributary to Greenwood Creek, a small tidal tributary to the Ipswich River. This outfall is located within the ACEC and borders on marshland owned by TTOR.

In order to address the transport capacity shortfall, the spring 1999 Town Meeting authorized the town to borrow \$1.9 million to build a new 7000-foot force main extending from the Town Wharf pumping station to the treatment plant. The new and larger conduit replaced the old force main built in 1958. It eliminated both leakage from occasional ruptures of the force main and, coupled with improvements to the pumping station at that time, backups after big rainstorms. These upgrades have been critical in reducing leakage of inadequately treated and untreated wastewater into the Ipswich and Eagle Hill rivers during storms.

The potential for extending sewer service to Jeffreys Neck has been vigorously debated for five years since the submission of the previous open space plan. Some of the residents of the Jeffreys Neck, Great Neck and Little Neck areas proposed that they pay approximately \$20 million, the cost for the town

to build a sewer extension from its current terminus on Jeffreys Neck Road. The sewer was to reach all of the neighborhoods on the Necks and also to make a connection available to Little Neck. Town policy requires that sewer extensions be fully funded by betterments against the improved properties. State legislation requires that at least 75 percent of the residents to be charged for the sewer extension support its construction. Through a plebiscite in 2003, it was determined that the requisite 75 percent support for the sewer extensions was lacking. As a result, sewerage of Great Neck and Little Neck was set aside at that time.

Since 2001 the Feoffees of the Grammar School (the trust owning Little Neck) have been under an ACO from the DEP to comply with statutory and regulatory provisions concerning sewage discharges to ground water. As a result, a sewage collection system is being constructed to serve all but three of the 167 houses on Little Neck. In the near term the collected wastewater will be held in a community tight tank before being transported by tank trucks (septic pumpers) to the town wastewater treatment plant for treatment and disposal. However, a longer term solution is needed. A proposal was made to extend the sewer line further along High Street to the Mile Lane/Paradise Road intersection, but it failed to obtain town meeting approval. A short extension down Marshview Road and along Newmarch Street was approved to address a failed septic system in the area.

Housing development has often followed sewer extensions, since some sites are virtually not developable without sewer service. In fact, soils in large areas of Ipswich probably will not pass current soil absorption capacity test requirements. In other areas the soil capacity is severely limited. Development, therefore, would be substantially facilitated by the availability of central sewer service. For example, the sewer extension proposed over the last decade to serve the entire Jeffreys Neck area could result in a 30 percent increase in homes on the Neck, an area already heavily developed. The Open Space

Committee and town staff have been negotiating with the owners of most of the remaining open land on Great Neck. The committee's goal is acquisition of this land to prevent its development resulting from the potential extension of the sewer. This would preserve a key wildlife habitat.

Meanwhile, the spring 1999 Town Meeting clarified a bylaw passed in 1994 requiring any sewer extension over 500 feet to be placed before town meeting for approval. The purpose of the bylaw is to ensure careful consideration of major sewer extensions that enable rapid growth. Since then, the Board of Selectmen, acting as Sewer Commissioners, has approved two sewer extensions just short of 500 feet. This action suggests the possibility of a series of short extensions over time that could significantly extend the system without town meeting approval. The efficacy of the bylaw will be part of the above debate on the future of sewerage in Ipswich.

New England Biolabs, rather than extending the sewer to their site on County Road (Route 1A), built a package treatment plant on-site to handle wastewater and solid waste from the employee and industrial uses.

Issues of water contamination and sewer system extension have been addressed in the *Final Report of the Coastal Pollution Control Committee* (1995) and the *Report of the Temporary Sewer Advisory Committee* (1995). Following these reports, the town successfully sought a grant from DEP to develop a septic system management plan and a program for low-interest loans to homeowners for upgrading onsite wastewater systems. The town's consultant and its ad hoc Septic System Advisory Committee submitted a plan in 1997, and in 1998 the Board of Health took initial steps to implement some of the plan's recommendations. However, the implementation of any such management plan has been tabled for many years. Like sewerage, septic system management will be a topic of

great concern and debate in Ipswich for the foreseeable future.

Long-Term Development Patterns

The town is currently experiencing a brisk real estate market, as evidenced by the growth rates noted above. Over the five years since the last open space plan (2000-2004), there have been approximately 277 building permits issued for new housing units. In the years for which records were provided, as many or more of the new units were constructed on "Approval Not Required" lots as were constructed within subdivisions. This results in an average of 55 new housing units/year. In a town of only about 13,000 people this is a significant rate of growth.

Ipswich requires special permits for the construction of multi-family housing. In spite of this, in the years for which information was provided, approximately 50 percent of the new housing units were in multi-family developments. For the entire five-year period, the town kept track of the location of the new housing units. In most years, approximately 30 percent or more of the housing units were located within the immediate or near downtown area. This number ranged from a low of 21 to a high of 46 percent. The next most popular location for new housing units was the area from the downtown west to U.S. 1. This results in part from the build-out of Turner Hill.

Any of the major landowners in town could experience financial difficulty or have the desire for more liquid assets. Either situation could prompt them to sell some of their land, undertake limited development projects or sell entire parcels outright. This has happened with the Catholic orders who owned large estates in town. Two of these three properties were recently sold. In anticipation of those sales, the town added a Great Estates Preservation Zoning Bylaw in 1997. The bylaw allowed varied development on these Great Estates instead of just residential development. This offers the

town certain benefits, such as a minimum of 30 percent of the properties as open space, preservation of historic buildings and scenic views along the frontage roads, and public access to the open space in perpetuity. The town also passed the Open Space, Recreation, and Water Supply Protection Fund, as well as the open space bond in the late 1990s and early 2000s. Through these efforts, the town was able to hire staff to oversee a land acquisition and protection program. These efforts have afforded the town the resources and expertise to protect land through a variety of mechanisms.

One of the Great Estates mentioned above, renamed Turner Hill, will offer a hotel/conference center, a golf course and 180 residential units. The other estate has been purchased by a small scientific company, New England Biolabs, for use in research, development and manufacture of enzymes. The firm has constructed a 150,000-square-foot facility. New England Biolabs has agreed, through the instrument of a Tax Increment Finance Agreement and a special permit under the Great Estates Preservation Zoning Bylaw, to:

- Preserve 30 percent of the upland on-site as open space
- Allow continued use of the soccer fields for local teams
- Protect natural features of the land including view corridors along Route 1A as well as most of the wooded portions of the site
- Preserve the buildings, structures and landscape features of the Great Estate.

Further, New England Biolabs has committed \$1 million towards the acquisition and preservation of an abutting parcel with open fields and views from Route 1A.

In the context of this plan, the significance of the construction of new homes is their consumption of open space on the one

hand. On the other hand, the contrary effect of increasing the demand for open space and recreation occurs. In other words, the same population forces that create additional need for open space are responsible for a decrease in that very resource. The current open space provision of the zoning bylaw "encourages the use of open space for agricultural, conservation, and/or passive recreational use." Recent changes have been made to stimulate increased use of the cluster zoning option and to increase the amount of open space protected by this option. Issues such as endangered species, forest fragmentation, wildlife corridors, and important plant communities must also be addressed if zoning is to be effective.

Other than general statements about landscaping in the new light industrial and commercial districts on U.S. 1, in the Highway Business District on Route 1A/133, and on designated scenic roads, current zoning includes landscape preservation in more detail. The Great Estates Preservation Zoning Bylaw and the Site Plan Review (SPR) speak to maintaining trees, landscapes and views. In order for future growth to be desirable, these landscape characteristics must be considered as they have been in the Great Estates bylaw. Recent additions to the SPR require the plans to show wetland features and unique site features and to list their preservation as a general standard. Grading and clearing operations have been added as activities to which SPR review applies. Preservation of natural features and the requirement to provide information to identify them on subdivision plans should be strengthened in the Open Space Preservation Zoning Bylaw. This is particularly important since the town recently down-zoned all rural residential zones to two-acre zoning. This allows development at the one-acre density only for projects undertaken through the Open Space Preservation Zoning Bylaw and providing affordable housing units.

Just before the previous open space plan was completed in mid-1999, a dozen students

from the Harvard Graduate School of Design conducted an investigation called "Planning for Smart Growth on the North Shore." The report of that study, titled *Grow Smart North Shore*, lists recommendations for guiding growth to preserve the region's socio-cultural, water and ecological resources. It also contains a build-out analysis for Ipswich. This analysis estimates the potential for residential house lots at about 4800, which would nearly double the number of households in the town. It also estimates a potential for up to two million square feet of additional commercial and industrial space. The potential for neighboring Essex is even more startling--a potential increase of over 400 percent in households. It is safe to say that few citizens have anticipated the consequences of this kind of steady growth. School systems, water supplies and other components of the town's infrastructure would be severely strained. This timely report brings into sharp focus the need for careful planning for growth. This work preceded an active planning period for Ipswich and the build-out analysis undertaken by the state.

The *Ipswich Build-Out Analysis*, prepared in 2001, estimated that 4,281 additional residential units could be constructed. This number was based on zoning that was in effect at the time. Since that time, several Chapter 40B multi-family developments have been approved, several special permits for multi-family housing have been approved, and residential zones were down-zoned. The impact of these changes is unclear. The state-prepared build-out further estimates a potential near doubling of school students and residents, and more importantly an increase in water demand of approximately one million gallons per day. At this development level, Ipswich would become a different town.

Since the production of the last open space and recreation plan, Ipswich has produced two new plans--the 2003 *Community Development Plan* and *The Future of Ipswich Planning Project, Pt. II: The Vision for Open*

Space: The Ipswich Green Ring Report, July 2000. These two efforts taken together provide important recommendations and directions for the town in preserving open space. They also highlight the roles of development and preservation in other concerns in town, including housing, economic development and transportation. The Green Ring Report identified connected areas of open space in town that provided important natural features, recreation potential and wildlife habitat. This report has provided the direction and inspiration for the open space bond program and ongoing efforts of the Open Space Committee to protect critical land areas. The recommendations were integrated into the CDP as appropriate. The Green Ring Report was also incorporated by reference. Town Meeting accepted the CDP, with the green ring report incorporated, as a plan that would be referenced in decisions of appropriate land use boards and committees in town.

Members of the Open Space Committee have been attending the regional meetings of the North Shore Open Space Network and have been making efforts to coordinate the goals of the open space committees that abut Ipswich. Important areas to protect that have been identified by a variety of organizations involved in land protection include the following:

- The Prospect Hill area in Rowley and Ipswich that has a significant portion of the land protected, with some remaining parcels needing protection. The area hosts the Bay Circuit Trail.
- The Egypt and Rowley River coastal watersheds that are important stream resources in the coastal environment and ACEC.
- The Miles River watershed that stretches from Wenham to Ipswich and is in need of additional protection of abutting land.
- The area surrounding U.S. 1 in Rowley and Ipswich. Significant

industrial/commercial development in Rowley has opened up large amounts of land and fragmented the habitats on either side of the road. This area abuts the protected Hunsley Hills in Rowley as well as the areas abutting the Ipswich Country Club and Willowdale State Forest.

- The scenic roadway on Route 133 from Raymond fields in Ipswich to just north of Essex Center. This is the most authentic colonial landscape still existing in the area. Essex County Greenbelt Association (ECGA) has been involved in its protection.
- The Ipswich River corridor for its entire length in Ipswich. The upper river was used to generate power with two remaining dams on the river. The lower river was prominent in coastal uses such as navigation, fish landings and agriculture. Several organizations have recognized its historic and habitat value, and significant portions have already been protected.

Essex County is fortunate to have the ECGA, Massachusetts Audubon Society, and TTOR involved in land protection in this area. They have coordinated local open space committees, collected plans and financially supported land protection work.

Recently Ipswich has experienced significant growth in multi-family housing as a result of the issuance of special permits and comprehensive permits, as indicated above. Activity has been quieter on the front of standard subdivisions. Recent developments approved or in the approval process of comprehensive permits (as of spring 2005) to provide affordable housing, special permits and definitive subdivisions include:

- Powderhouse Village – 40 units approved by comprehensive permit
- Whipple Annex – 10 units approved by comprehensive permit
- 6 Howard St. – Open Space Preservation Zoning Bylaw subdivision of eight units
- Residences at Two Rivers – recently filed 40B comprehensive permit
- Ipswich Pines (82 Topsfield Rd.) – in process
- 11 Cogswell St. – two units approved by comprehensive permit
- Kimball Avenue – two infill units; construction will begin summer/fall 2005
- Essex Road, Habitat for Humanity – three affordable units completed
- 20-22 Washington St. – eight units of attached housing
- Charlotte Road subdivision – special permit obtained by participating in Open Space Preservation Zoning; no definitive plan submitted yet.

Ipswich has made a strong effort to build affordable housing and has had some important successes. The Open Space Committee has generally supported the development of affordable housing proposed for the downtown area. The committee has taken positions against the development of other comprehensive permit projects. As a result, the Open Space Committee has requested that the Department of Planning and Development prepare a Planned Production Plan to specify how the town will meet its affordable housing obligations. The committee has also requested a meeting with the Affordable Housing Committee. The goal is to work together in identifying parcels for protection and parcels appropriate for affordable housing.

The protection of open space plays an important role in contributing not only to the increased enjoyment of abutting property owners, but also to the increased value of the

surrounding properties. Studies show an increase in the value of privately-owned properties abutting protected open space. A study conducted for the Center for Rural Massachusetts compared the market value of smaller lots in cluster subdivisions with protected open space to conventional subdivisions with no open space. It was prepared to convince developers that they would not lose income by using the cluster concept.

The results of this study demonstrated that homes on smaller lots abutting open space were generally as valuable as the same homes on larger lots. Further, if the open space were owned by a homeowners association, it would actually increase the total assessed value of the property. Telephone interviews with several realtors also confirmed that proximity to protected open space, especially with a view, does add some value to that property. The Center for Rural Massachusetts study notes that “the home-buyer, speaking in dollar terms through the marketplace, appears to have demonstrated a greater desire for a home with access and proximity to permanently protected land than for one located on a bigger lot, but without the open space amenity.”

The town reviewed building permits for parcels on Ocean Avenue and Jeffrey's Neck Road with excellent views of the open fields of Strawberry Hill. The review indicated that, in the period since Strawberry Hill was acquired, \$565,000 of improvements have been made to homes on Ocean Avenue. Once it was known that the views from these homes were secured by the town's protection, homeowners made large investments to improve the properties so they could take full advantage of these views. While it is not known with certainty if this was a causative factor in these home improvements, it seems likely to have had an important impact. The town can expect this dynamic of investment to persist in other areas where the protection of a parcel directly affects a large number of abutting homeowners.

Economy

An overview of the town's existing economy provides background for examining issues related to economic development. These include zoning, the strengths and weaknesses of individual industries, and the potential of the town's business areas and industries to meet goals related to employment and overall economic health. The following statistics are the most recent from the U.S. Census, the Massachusetts Division of Employment and Training, the Metropolitan Area Planning Council (MAPC), and the Town of Ipswich

The 2000 Census revealed that there are 7,017 people in Ipswich's labor force, a 6 percent increase from 1990, or an annual average growth rate of 0.6 percent. While this growth has been moderate, it is higher than both Essex County (4.1 percent increase) and the state (0.3 percent increase). On average, Ipswich residents have a higher level of education than both Essex County and state residents. More than 40 percent of Ipswich residents over the age of 25 have a bachelor's degree. Averages for Essex County and the state are seven to ten percent lower. In addition, in 2000, nearly 18 percent of town residents aged 25 and over held a graduate degree, compared to about 12 percent in Essex County and 14 percent in the state.

Employment of Ipswich's residents is characterized by a predominance of white collar occupations that surpasses the county, state and national averages. In 2000, 47 percent of the labor force was employed in managerial, professional and related occupations. This exceeded both Essex County and state averages, which were around 40 percent, as well as the national average of 34 percent. These occupation types are usually among the better paying positions, which contribute to a median household income in Ipswich that exceeds county, state and national averages. In 2000, the median household income for Ipswich residents was \$57,284, compared to \$51,576 for Essex

County, \$50,502 for the state and \$41,994 for the U.S.

As of 2001, the largest employers in Ipswich were wholesale and retail trade (26 percent), services (25.7 percent), manufacturing (16.2 percent), and government (15.4 percent). In 2000, Ipswich had 6,897 employed residents but only 3,927 local jobs—a net deficit of almost 3,000 jobs. Thus, Ipswich is a net exporter of labor. This deficit requires most Ipswich residents to commute to other communities to work. The town did add an impressive 845 jobs, or 27.4 percent, between 1990 and 2000, compared to an increase of 10.4 percent in the North Shore Task Force (NSTF) subregion of the MAPC region. New employment in Ipswich alone has accounted for about 5.6 percent of the new employment in the 15-community NSTF region since 1990. In this regard, the town’s economy is growing quickly, although it remains relatively small for a town of its population.

The economy in Ipswich has remained fairly consistent throughout the past decade. The number of establishments fluctuated and total employment declined by nearly 9 percent during the recession of the early 1990s, but has since rebounded. The number of establishments in 2001 shows a 13.2 percent increase over the 1990 figure. Consistent with statewide and national trends, the greatest number of jobs in Ipswich is in trade, which remained relatively constant throughout the twelve-year analysis period. In comparison, the town’s share of manufacturing jobs has fluctuated significantly from a low of 487 in 1991 to a high of 893 in 1994; the annual average has been around 720. The number of jobs in agriculture, forestry and fishing has nearly tripled in the past 12 years, although the total number of jobs is relatively small. All industrial sectors are relatively stable and overall are exhibiting an upward trend. One exception is the transportation, communications and public utilities sector, which has diminished significantly since the recession of the early 1990s. The average annual wage for employees

in Ipswich in 2001 was \$32,457, up from \$23,957 in 1990, a 35 percent increase.

Major employers and potential new employers include the following:

- **EBSCO Publishing**, a software publishing company, is presently the largest private-sector employer in town, with 475 employees. EBSCO relocated from Peabody to Ipswich in 1995. It occupies two buildings in the town center and has recently acquired a third, the underutilized former Ebinger Leather building next to the commuter rail lot on Topsfield Road.
- Another major employer, **Ipswich Shellfish Company**, is located in the Ipswich Business Park, an industrial park on Hayward Street. After enlarging its operations in 1995, the company recently expanded a second time with the construction of a retail market building adjacent to the operations buildings. Current employment is approximately 125-130. In addition to wholesale operations, the company sells shellfish in a retail store.
- **New England Biolabs**, an enzyme company, has recently completed a corporate headquarters on one of the other Great Estates sites. The facility includes a new building with 150,000 square feet of lab space as well as a rehabilitated historic building (part of the original estate) containing 50,000 square feet of office space. The facility opened in 2005 and will eventually employ about 400 workers.
- New businesses in town include **Arbor Inn**, a 20-room motel currently under construction on High

Street. A **mixed-use office building** with four apartments is also under construction directly across the street. **Kortec**, a manufacturing firm located in Beverly, recently received approval for an 85,000-square-foot building on Old Right Road. The business is expected to employ 70 people.

The 1997 U.S. Economic Census provides information on the major business sectors within Ipswich, including retail trade, wholesale trade and various service industries. An analysis of these sectors as well as a qualitative assessment of the town's three biggest natural resource-based industries: agriculture, shellfishing, and tourism, are discussed below.

In 1997, the town's retail sector included 55 establishments with 468 employees, annual sales of about \$95 million, and an annual payroll of about \$12 million. For the retail trade sector, employees in building materials, and garden equipment and supply stores had the highest average retail wages at \$40,157. The overall average wage, including all retail types, was \$25,355. The wholesale trade sector included 59 establishments with 678 employees, annual sales of about \$246 million, and an annual payroll of about \$23 million. Employment in wholesale trade was split fairly evenly between durable goods and nondurable goods.

The 1997 U.S. Economic Census reported that service sector employees in the healthcare and social assistance fields had the highest wages, averaging \$24,567. The lowest-paid sectors included real estate, and rental and leasing jobs (\$12,522 average wage), and the food services industry (\$11,072 average wage). Wages in the professional, scientific and technical service industries averaged \$31,010.

Agriculture represents a small portion of the town's economic base, but makes a large

contribution to the land base, community character and self-perception as a semi-rural community. According to the 2000 Open Space and Recreation Plan, the town has about 2,064 acres of land assessed under Chapter 61A for agricultural tax abatement, or about 10 percent of the town's land area. In order to receive this assessment, a significant portion of the land must be in active production. Economic statistics for agriculture in Ipswich are not available, but statistics for Essex County shed some light on the relative importance of the industry. In 1997, agriculture in Essex County produced over \$25 million worth of sales. Many farms are oriented partially or mainly toward direct retail sales to the public. Essex County ranked 35th among all U.S. counties in the value of agricultural products sold directly to consumers, according to the USDA. However, in the most recent agricultural census, 51 percent of Essex County farms operated at a net loss in 1997. Major farm crops in Ipswich include corn, squash, tomatoes, strawberries and hay. Some of the town's farms have added an "agri-tourism" component to their business, attracting customers to the farms to participate in activities such as pick-your-own and petting zoos, and to purchase prepared foods such as breads and pies.

In 2001, a subcommittee of the town's Growth Management Steering Committee prepared a report on family farms in Ipswich. This report identified agriculture as a primary contributor to the town's character, open space and way of life, but pointed out that few of Ipswich's farmers rely solely on farm income for their livelihood. Farm costs (such as equipment, labor, chemicals) have increased in recent years and revenues have remained relatively flat. As a result, farming in the town is often a break-even business that must be supplemented by outside income. The report concluded that many farmers remain in business because they enjoy the lifestyle or wish to carry on a family tradition. Typically in Ipswich, farmers have not sold their land unless forced to by financial duress.

Agricultural statistics from Essex County and the 2001 Ipswich farming report underscore some of the challenges and opportunities of farming in a metropolitan area. In general, the most successful farms have adapted by including an agri-tourism component, adding a retail store to sell directly



to the public, or shifting to “niche” markets. These markets, such as organics, specialty crops and flowers, bring in higher revenues than “commodity” crops. Many have also included a “value-added” component to their business, preparing foods such as jams, cider, pies and ice cream from the raw foods produced on the farm.

Ipswich is one of the top shellfish producers in the state. According to the Shellfish Constable, commercial shellfishing in 2000 landed 366,500 pounds of softshell clams and 3,850 pounds of razor clams. Recreational harvests totaled 98,900 pounds, including 82,500 pounds of softshell clams and smaller amounts of sea clams, mussels and oysters.

The shellfishing industry fluctuates from year to year depending on biological and weather conditions. The number of commercial shellfish permits also fluctuates with the availability of clams, with 120 commercial permits issued in 2002. Shellfishing in Ipswich is rarely the sole source of income for shellfishers; instead, it is often a second job or a

weekend pursuit. Since licensed shellfish dealers purchase all of the commercial harvest, shellfish processing and wholesale is a significant industry in Ipswich.

The health of the shellfish industry is closely tied to conditions in the coastal areas where shellfish are found. For example, a red tide in the early 1970s completely closed the town’s shellfish beds for several months. After large rains, runoff is washed into the creeks and marshes, bringing with it fecal coliform and other pollutants. As a result, certain potential shellfishing areas in Ipswich are completely closed to shellfishing or are closed after storms. If pollution sources can be found and eliminated, some of these areas could be reopened for shellfishing, potentially increasing the size of that industry. In the past several years, some progress has been made toward improving water quality around the town’s coastal areas; for example, the Ipswich River clam flats were open for harvesting during much of 2001 and 2002.

With the largest collection of pre-1725 homes anywhere in the U.S., Ipswich attracts many tourists, both locally and from abroad (many from Ipswich, England). Old Ipswich Tours conducts walking and driving tours of historic homes. A Visitors Center downtown provides information on local historic resources. The town also supports a strong agri-tourism industry, with a number of family-owned or family-operated farms that provide visitors with a hands-on agricultural experience, allowing them to pick apples, raspberries and strawberries. Ipswich’s open fields and farms also contribute to the town’s scenic character, which is a major attraction for tourists.

Crane Estate is a permanently protected 2,100-acre site owned and operated by the non-profit The Trustees of Reservations. It draws thousands of visitors to the town’s scenic coast to enjoy views of uninterrupted salt marshes and Crane Beach. A building on the former Crane property has been converted to a bed and

breakfast, the Inn at Castle Hill. TTOR uses proceeds from the inn to fund land preservation activities.

The town currently has about 15 motel, and bed-and-breakfast beds available. However, this number will increase substantially over the next several years with the opening of a new 20-room motel on High Street north of the town center, as well as the 25-room luxury hotel at Turner Hill. Approximately 8,000 tourists used the Visitors Center during the 2002 season (Memorial Day weekend to the end of October). Most Ipswich residents support tourism in the town and see it as a good way to keep town businesses and downtown viable. However, some residents do not support increased tourism, fearing consequences such as increased traffic. Recent measures to encourage tourism have included improvements to the pedestrian environment of the town center by reconfiguring

intersections, upgrading pedestrian amenities and adding landscaping treatments. In addition, the Riverwalk over and along the Ipswich River, connecting the west section of the town center to the east side by the Visitors Center, is under construction.

Ipswich's economic development goals favor continued job growth as well as the expansion of the business tax base. However, the town does not want to promote business growth at the expense of its natural resources and community character. Accordingly, the Economic Development Action Plan section of the CDP focuses not only on attracting appropriate business development, but also on ensuring that this development is compatible with these important town values. The plan recommends making the best possible use of existing business areas as well as undeveloped land zoned currently for economic development,



rather than re-zoning additional land for business use. Within existing business-zoned areas, the CDP takes a detailed look at allowed uses and design guidelines, and suggests improvements to these policies.

Locations for new or expanded business activity are largely within existing business zones as noted above. The Great Estates

Preservation Bylaw has allowed business activities (a golf course, restaurant, small inn, and biotech firm) on large estates in return for land protection and preservation of historic estate homes. The Planning Board and Town Meeting have considered over the last several years whether allowing such development on specific additional sites is wise, but no bylaw changes have been approved.

SECTION 4. ENVIRONMENTAL INVENTORY AND ANALYSIS

4A. Geology, Soils and Topography

Much of the surficial geology, soils and topography in Ipswich can be related directly or indirectly to the advance and retreat of the continental ice sheet that covered the area during the Wisconsin stage of the Pleistocene Period. The advancing ice carried with it debris from previously unconsolidated deposits as well as fine rock particles and larger fragments scoured from the bedrock surface. Most of these materials were redeposited by the ice as masses of till. The till was deposited primarily as moraines and drumlins. A thin till veneer exists just above the bedrock but it is obscured by subsequent deposits in most places. These moraines and drumlins, which generally range from 80-200 feet above sea level, form prominent features of the landscape. The largest of these, Turkey Hill, rises to a height of 251 feet. Other prominent hills include Heartbreak, Jewett, Steep, Castle, Turner, Town, Bartholemew, Northridge and Tilton. Many of these offer spectacular views of the coastal area.

As the ice sheet began to retreat, significant amounts of glaciofluvial (outwash) deposits were made throughout the town by the glacial meltwater. These deposits are primarily sand and gravel and were deposited in the form of kames, kame terraces, kame deltas, ice channel fillings, and collapsed stratified drift. They occur both at the surface and in underlying post-glaciation deposits. These deposits formed some terraces at elevations of 20-80 feet, some mound ridges, and two well-defined eskers in the town. The sand and gravel deposits, although plentiful, are small to moderate in size, which limits their economic significance. In addition, many of these deposits lie within residentially zoned or conservation areas, preventing their exploitation.

After the melting of the glaciers, the sea level rose rapidly to a point about 40-80 feet above the current sea level. This inundation is evidenced by marine silts, sands and clays deposited over till and glaciofluvial deposits in large areas in the eastern half of the town. Much of the lowland east of U.S. 1 consists of these deposits. In addition, beaches and sand dunes were deposited during this period at and above the old shoreline at elevations that are currently 80-100 feet above sea level. These unique features may be seen on the north slopes of Turkey, Town and Bartholomew hills.

The subsequent withdrawal of the sea to a point below but near the current shoreline occurred rapidly about 9000 years ago. At that time, wide-scale crustal rebound and uplift took place after the weight of the glacier was removed. Significant post-glacial deposits have since occurred and complete the current geological makeup of the town. These include saltwater marsh deposits, freshwater swamp deposits, alluvial deposits in the Ipswich River valley, and beach and dune deposits. Although laid down very recently, these deposits account for nearly 50 percent of the surficial geology of Ipswich. For example, approximately 21 percent of the town (4500 acres) is salt marsh, 10 percent (2000 acres) is freshwater swamp, and 10 percent is beach and sand dunes (eight miles; over 2000 acres). These modern deposits, when taken together with the several prominent moraines and drumlins, account for the most significant features in the community.

Complex geologic and vegetative successional history has produced a variety of soil types in Ipswich. The U.S. Soil Conservation Service has described at least 71 different soils. Approximately 90 percent of the total surface area of Ipswich can be grouped into one of four soil-type associations:

1. Ipswich-Westbrook Udipsamments – 30 percent (deep, level to sloping, very poorly drained or excessively drained mucky soils formed in

- organic salt-marsh deposits or marine-related beaches and windblown sand)
2. Paxton-Montauk-Urban – 20 percent (deep, level to steep, well-drained soils formed in glacial till or urban area)
 3. Boxford-Scitico-Maybid – 20 percent (deep, level to sloping, well-to very poorly drained soils formed in estuarine or marine deposits)
 4. Merrimack-Hinckly-Urban – 20 percent (deep, level to steep, well- to excessively-drained sandy soil formed in outwash deposits).

The remaining 10 percent consists of smaller associates that are shallow to deep, level to steep, very poorly to well-drained soils formed in freshwater organic, till, outwash deposits. Two of these larger associations, the Ipswich-Westbrook and the Boxford-Scitico, are unique soils and are relatively rare statewide. In addition to the upland areas, there are approximately 1500 acres of intertidal area in Ipswich. This land was deposited relatively recently and consists mostly of sand and sand-muck mixtures. MAP 2 illustrates the building potential of soils in Ipswich.

The highly varied surficial geology has various effects in terms of human uses. Wetland protection and subsurface sewage disposal regulations prohibit most development in many of the soil types. When these areas are added to the large tracts of conservation land, about 50 percent of the town can be considered undevelopable. Of the remaining 50 percent with soil types suitable for development, approximately 25-30 percent (i.e., over half of it) has been developed. The bulk of the remaining 20-25 percent undeveloped land consists of several of the moraines, drumlins, and their surrounding areas, and agricultural land. Less than 5 percent of the soils in Ipswich are classified as significant agricultural soils, although considerably more land area has been or is in agricultural use. Many of the geological

features and their associated environments (namely beaches, sand dunes and hills) offer excellent recreational opportunities. The need for protection of these resources is clear.

4B. Landscape Character

The distinctive natural beauty of Ipswich's seaboard lowland landscape is known and valued by countless North Shore residents and attracts visitors from great distances. The starting point and best-loved scenery is the coastal barrier beach with its extensive sand dunes, thickets, pitch pine forests, red maple swamps and abundant mix of wildlife (some threatened; section 4E). This barrier holds the ocean back from invading the large expanse of estuarine salt marshes and their bordering woodlands. The panoramic views of ocean, salt marsh and large tracts of preserved open space provide a palette of changing color through the seasons. Many gently rolling hills and drumlins left behind by the last glacier form a scenic backdrop to the estuaries.

The Ipswich River forms a scenic corridor as well as adding an attractive feature through the center of town. It adds diversity, drama and variety to in-town historic homes and bridges, including the new pedestrian bridge extending the town Riverwalk into the downtown commercial area. The potential for creative development of pathways can add to the scenic values of the river. Farther upstream away from the town center, the Ipswich River is largely in its natural state, passing through hemlock-wooded banks and forested bottomland. Much of the water, however, is diverted to supply water for other towns (section 3A).

Away from the river, the landscape is sprinkled with numerous small ponds, wooded swamps, and three great ponds: Clark, Hood and Rantoul. The latter two have relatively little shoreline development. All three host a variety of flora and fauna, particularly migrating

waterfowl and congregations of post-breeding herons.

There are ten major drumlin hilltops in town (section 4A), which provide a dynamic interplay of hilltop vistas fronted by open fields and marshes. Many of these landscapes can be appreciated by driving along the main Scenic Corridors in the town, though unfortunately several of the hilltops have been marred by development.

Historically, much of the development of Ipswich was concentrated in the town center. Outlying areas were gradually built up along the roadway corridors in and out of town. Many of the town's most scenic landscapes are protected—some under the open space bond. However, there are significant open tracts of land, including some of the hilltops, which are intrinsically part of the scenic landscape. These are currently unprotected and vulnerable to development. Some of the hilltops and meadows have already been developed. Recreational uses such as fishing, swimming and clamming are impacted by pollution from intense development on inappropriate soils.

Development has already affected the ability to use continuous trail systems. Trail systems such as the Bay Circuit Trail, which is maintained by the Ipswich Bay Circuit Trail Committee, and many other local trails maintained by groups like Essex County Trail Association (ECTA) and ECGA can be affected by future development. There are also many pockets of unprotected land with potential for connector trails. Visiting and observing the biological diversity and harmony of intact and balanced ecosystems is a pleasurable activity enjoyed by naturalists, hikers, riders, skiers, artists, and others seeking the peace and quiet of nature. The integrity of these ecosystems, which is critical to both the health of the environment and the recreational enjoyment of people, is what is ultimately vulnerable to inappropriate development.

The town's landscape character is detailed in the *Town Character Statement* (TCS). It is a product of several years' collaboration among the Department of Planning and Development, two visiting British planners, a group of graduate students from Tufts University, and over 80 citizen volunteers. The project was, indirectly, the primary means of obtaining citizen input to this edition of the open space and recreation plan. The stated purpose of the TCS is "to preserve the distinct historic character of Ipswich as well as protect the diverse community and environmental resources that define the town." The document "should be taken into consideration on all future planning and development activities, to ensure that future development fits local surroundings and adds to the distinctive local character."

The TCS provides extensive detail on the landscape character of the town and can be considered included in this plan by reference. It describes Ipswich in terms of four areas:

1. Town center
2. Inner residential area
3. Outer residential area (the western and southern sections of the town and the majority of the land area)
4. Eastern coastal area (centered on the town's salt marshes).

The latter two areas, constituting the vast majority of the town's 33 square miles, are of primary interest to this plan. One of the issues defined in the TCS is directly relevant to this section: "Open space is highly valued by the residents of Ipswich and contributes significantly to the character, history and economic base of the town. It is an integral and defining characteristic of Ipswich, and demonstrates the importance of recreational opportunities and environmental conservation and preservation to the town."

GOAL 1 in **SECTIONS 8** and **9** of this plan has been included in previous open space plans because it is fundamental to the expressed

interests of Ipswich citizens. That goal is to “Preserve the Historic and Scenic Character of the Town.” The action items are minimal because the TCS has many guidelines that deal directly with this essential goal. The two documents are so closely related that the words “in conjunction with the 2004 *Town Character Statement*” have been added to **GOAL 1**. The few action items are repeated or paraphrased from the TCS, with the understanding that the TCS guidelines concerned with open space essentially constitute a program for carrying out the objectives of **GOAL 1**.

4C. Water Resources

Freshwater and tidewater resources are the significant surface-water resources of Ipswich. Groundwater resources are utilized for public and private potable water supplies and, to a limited extent, for private irrigation of crops and residential plantings. Ground water resources are also important to the maintenance of base flow in streams.

Freshwater Resources

- Surface water supply (Dow Brook and Bull Brook reservoirs and tributaries), with wildlife use but no on-water recreation and little shoreline development. Public ground-water resources are the town wells: Mile Lane, Brown’s, Fellows Road, Essex Road and the three Winthrop wells. The watersheds of the surface water supplies and the recharge areas of the wells are protected through a combination of public ownership and the town’s Water Supply Protection District (an “overlay” district) Bylaw. Protection against inappropriate use and activity is provided for all surface water supply Zones A and B, and for all groundwater wells Zones I and II. This bylaw, including its detailed Table of Uses, is approved by DEP. Primary enforcement is through the Office of Code

Enforcement and the Planning Board. Maps showing these protective zones are publicly available and posted in Town Hall.

In addition, the Conservation Commission enforces the Wetlands Protection Act (MGL Ch. 131 s. 40) and regulations at 310 CMR 10.00, and the Ipswich Wetlands Protection Bylaw (Chapter XVII of the General Bylaws) and regulations thereunder. This provides all resources and buffer zones with a high degree of protection from alterations that could adversely impact surface- and groundwater resources.

- Freshwater ponds with recreational and wildlife use or use potential (principally Hood, Clark and Rantoul ponds). Hood Pond, at the west end of town, is a multi-use resource supporting boating, bathing and fishing. It has state protection partly by its designation as a "Great Pond" and partly because much of it adjoins Willowdale State Forest. Clark Pond on Great Neck, and Rantoul Pond off Argilla Road, have no public access rights. However, Neck residents can use the narrow beach between Clark Pond and Plum Island Sound for recreation. All these ponds are important wildlife resources. They and their buffer zones are protected from alteration through the wetlands protection statutes, regulations and regulatory activities cited above.
- The Ipswich River upstream from the downtown (Sylvania) dam, supporting wildlife, canoeing, fishing, skating (occasionally) and passive recreation. The river recharges the Winthrop municipal drinking-water wells. This river and its associated systems are under great threat from upstream withdrawals for water-supply purposes. Under extreme conditions there can be no flow in the river at the dam. In

Ipswich, public access to the freshwater stretches of the river is limited to roadway crossings, the South Main Street end of the Sylvania Dam, the ends of some side streets off Estes Street, the park at the end of Kimball Street, and ECGA's bird reservation.

- The Miles River, supporting wildlife and limited passive recreational use. This river is publicly accessible in Ipswich only from Route 1A (via an adjacent ECGA property and the New England Biolabs property), and Sagamore Street.
- The Egypt River, running from the above surface-water impoundments to the Rowley River, supporting wildlife. Occasionally a canoeist or kayaker may work upstream from the Rowley River through the tidal portion of the Egypt River, but no recreational activity takes place above tidewater and there is no public access.
- Muddy Run, rising from the Linebrook Road area in several unnamed tributaries. There is little public access to its main stem that begins at High Street and runs to its junction with the Egypt River. Only the reach below the Paradise Road ford is navigable by canoe and only at high water conditions. Snowmobilers use the frozen swamps between High Street and the ford. The corridor, however, is a very important wildlife habitat.

All these resources are protected through the above cited wetlands laws and, to the extent they fall within the delineated Water Supply Protection District, by the strictures applicable therein.

Tidewater Resources

- Ipswich Bay. These waters support a commercial fishery and recreational

fishing, extensive recreational boating, and bathing at Crane Beach Reservation and the Plum Island beaches. Crane Beach, owned and managed by TTOR, hosts a half million visitors annually. The state Department of Conservation and Recreation (DCR) oversees the southern tip of Plum Island. The remainder of the Ipswich portion is part of the Parker River National Wildlife Refuge.

- Tidal estuaries. These include the Rowley River and its principal tributaries (the Egypt and Muddy rivers); the Eagle Hill, Ipswich and Castle Neck rivers; Fox Creek; Plum Island Sound; and the tidal creeks of Town Farm Road and the Ipswich River marshes. These resources support extensive vegetative and wildlife populations including commercial and recreational shellfish, finfish, crustaceans, and significant mammal and bird life.

These estuaries are extensively used for recreational boating. Public access is available only at the Town Landing. Restricted or limited access exists at Nichols Field, Strawberry Hill, Greenwood Farm, Pavilion Beach, the Ipswich Bay Yacht Club, Eagle Hill, and the Ipswich Outboard Club on the Ipswich River. Numerous private access points exist, and about 700 moorings are available in Ipswich waters. Boaters accessing tidewater from nearby towns and more distant areas use these waters as well.

Bathing within these estuaries occurs primarily at the town-owned Pavilion Beach and along the back (inland) shore of Castle Neck. There are no lifeguards at these places, but this has not been a problem. Waterfowl hunting takes place on these waters and in adjacent marshes.

The Massachusetts Department of Environmental Protection/Division of Water Pollution Control has established river basin boundaries and water-use classifications for these waters (314 CMR 4.00). These classifications represent goals for the waters, not necessarily present conditions. The Egypt/Rowley rivers and tributaries, including Dow Brook and Bull Brook, the Eagle Hill River, and Plum Island Sound, are within the Parker River Basin and Coastal Drainage Area. They are designated as "outstanding resource waters" (314 CMR 4.04(3)) and classified SA/B (**MAP 4**).

The Ipswich River, its tributaries including the Miles River, and its marshes are within the Ipswich River Basin and Coastal Drainage Area. They are classified as SA/B and designated as "warm water - high quality water" (fresh water portion - 314 CMR 4.04 (2)) and also as "open shellfishing" waters. The Castle Neck River, Essex Bay and associated marshes are classified SA and designated as "outstanding resource waters" and as "open shellfishing" waters.

All these waters, their adjacent coastal wetlands, and their shores up to the 10-foot elevation contour, are contained within the Essex Bay/Parker River ACEC. This area extends up the tidal Ipswich River to the Town Landing. The town, through its Wetlands Protection Bylaw, has established a 150-foot wide buffer zone landward of the ACEC. These waters are classified as "rivers" under the Rivers Protection Act (RPA) amendments to the WPA, above the "mouths of rivers" boundaries established by DEP in 2004. Thus these rivers are bounded by 200-foot wide RPA zones affording a high degree of protection through the existing wetlands regulatory programs. These safeguards are complementary to the protection afforded wetlands under the WPA and the town bylaw and are effectuated principally through the Conservation Committee.

Flood Protection and Watershed Management

The Planning Board and the Conservation Commission maintain files of current flood hazard zone maps from the Federal Emergency Management Agency (FEMA). These are available to the public and to regulatory agencies. Under the WPA and bylaw, all applicants are required to show the applicable flood hazard boundaries in application filings, and the Conservation Commission considers this information in administering these Acts.

To the extent that watersheds in town fall within any of the zones discussed above (Water Supply Protection, ACEC, flood hazard, wetlands, riverbanks), they are effectively managed and protected. Other portions of watersheds, beyond the reach of those strictures, are protected through the normal exercise of the planning and zoning practices of the town, which are among the most advanced in the state. In addition, the town's program of protecting open space through its open space bond authorization and its Great Estates Preservation Zoning Bylaw places a high priority on watershed protection. Recently hundreds of acres of watershed lands, otherwise in danger, have been protected, and the program continues.

4D. Vegetation

Ipswich, as a coastal community, has almost every northeastern type of habitat except mountains. Approximately 21 percent (4,500 acres) of the town is salt marsh, with the typical range of plant communities associated with that habitat. Another 2000 acres are beach and sand dunes. These are almost entirely on the protected Crane Beach Reservation owned by TTOR, and on Plum Island. The Ipswich portion of Plum Island is divided between Sandy Beach State Reservation at the southern tip and the Parker River National Wildlife Refuge. These dunes are vegetated by a mixture of beach grass, *Hudsonia*, beach pea and other plants of the open dunes. Behind the dunes are extensive

pitch-pine forests with pockets of red maple swamp and most of the town's few cranberry bogs.

This ecosystem harbors three of the town's plant species of special concern: seabeach needlegrass; and American and Rich's sea-blites. The absence of development and the enlightened measures taken in recent years by TTOR to protect the Crane



Beach dunes from excessive pedestrian and patrol-vehicle damage augur well for the continued health of the beach-dune ecosystem. The incursion of boat traffic into sensitive areas of the reservation is just beginning to be addressed. The state and federally run areas on Plum Island enjoy some of the same protections as Crane Beach Reservation. However, the Plum Island beaches are not off-limits to off-road vehicles except during the nesting season of the piping plover (section 4E). Even then only the federal refuge portions are protected from this threat. In addition, Sandy Beach is overrun with boaters in the warm months, as is the southeastern end of Crane Beach.

Inland, the town is typical of northeastern Massachusetts in its vegetative patterns. Large areas of mixed forest predominate, with white pine, red and white oak, red maple, hickory, beech and various other hardwoods constituting the majority of the canopy. Pockets of eastern hemlock occur, but they are less common than farther inland. Sugar maple is virtually absent in this coastal town. The forested areas are laced with swamps, where species like red maple, northern arrowwood, highbush blueberry, swamp azalea, sweet pepperbush, skunk cabbage and many others abound. Several Atlantic white-cedar

swamps located in the western end of town near Hood Pond are rare in the state and have several rare plant species associated with them. Other rare inland plants designated "threatened" by the state include arethusa, Indian paintbrush, slender cottongrass, Andrews' bottle gentian, adder's-tongue fern, violet wood-sorrel, pale green orchis, woundwort and river bullrush. These species vary in their habitat requirements and are thus

scattered about the town.

About 2400 acres of mixed-forest habitat are protected in Willowdale State Forest, which is selectively logged by the DCR. The remaining forest is largely privately-owned, though there are many protected parcels such as those owned by the Conservation Commission or land trusts. Others are protected through conservation restrictions (CRs). Over 520 acres are classified under the Forestland Act (Chapter 61).

Another major portion of town is agricultural, with thousands of acres in either active agriculture or fallow fields. Over 2000 acres of this land are classified under the state's Farmland Assessment Act (Chapter 61A). As detailed in **APPENDIX C**, several such parcels, as well as a significant inholding in Willowdale State Forest, acquired permanent protection under the 2000 open space bond.

In addition to the numerous wet meadows that dot the open areas, freshwater marshes occur in many places, some of them associated with duck ponds. Though purple loosestrife and phragmites have invaded many meadows and marshes, others are still "healthy," with higher proportions of native species like

cattails and pickerel weed. The town's only shopping center was built on a marsh in the days before wetland protection existed. However the destruction of the marshes has slowed considerably since the enactment and enforcement of the Wetlands Protection Act, the Rivers Protection Act, and the town Wetlands Bylaw and implementing regulations.

The town's industrial areas co-exist with wetlands, both swamps and marshes, and with aquifer recharge areas. One of the most significant of these is a large sand, gravel and pavement-reprocessing operation on a peninsula surrounded by salt marsh and a creek running into the marsh. Protective measures have been taken in recent years to prevent any further incursion of the reprocessing operation into the wetlands. Each year, the Conservation Commission certifies to the Board of Selectmen that the sand and gravel company does or does not meet the legal requirements for continued operation.

Nearby is another peninsula, similarly surrounded by salt marsh, where the former town landfill has grown up to meadow and to second-growth forest. This peninsula, the old Town Farm, comprises 425 acres of upland and salt marsh. It is one of the most valuable wildlife and recreational areas in Ipswich, despite continued use of the central 34 acres for recycling, brush burning and sludge composting. The rest of the farm, including extensive salt marsh, was designated conservation land by vote of the 1998 Town Meeting. The marshes surrounding these two peninsulas, along with the rest of the town's salt marshes, are part of the Ipswich-Essex Bay ACEC. These salt marshes are part of an extensive and continuous marsh ecosystem extending from Gloucester to Newburyport and beyond. It is known as the Great Marsh and constitutes the largest salt marsh system north of Long Island Sound.

The recreational uses of such a plethora of habitats are numerous. The salt marshes are

used for canoeing, kayaking, waterfowl hunting, birdwatching, other forms of nature study or simply enjoying the scenery, often with a camera or paintbrush. The beaches and surrounding waters are used for swimming, sunbathing, boating, fishing, surfcasting, hiking, riding and nature study. Regulated deer hunting is also permitted in some of these areas. The woods and fields offer the usual range of hunting seasons. With a network of trails in place, this area is heavily used for hiking, jogging, birdwatching, mountain biking, riding, cross-country skiing, and enjoying the parade of the seasons. Several people even use the trails in Willowdale State Forest for training dogsled teams. Many visitors come to Ipswich for the abundant recreational opportunities—Crane Beach Reservation is one of the most popular in the state. One of the major goals of this plan is to protect and improve these opportunities in view of the clear importance placed on them by the citizens and their guests.

4E. Fisheries and Wildlife

The vegetative systems described in section 4D have their corresponding wildlife communities. The most significant of the beach-dune animals are two species of birds, the piping plover and the least tern, both of which nest on Crane Beach and Plum Island. The U.S. Fish and Wildlife Service (USFWS) has nationally listed the piping plover as a threatened species. The least tern is a species of special concern as determined by the Massachusetts Division of Fisheries and Wildlife (MassWildlife). Both are actively protected by the biologists on TTOR and USFWS staffs. The beach ecosystem is also host to the federally endangered roseate tern, which migrates through the area, and the state-threatened eastern spadefoot toad. Common terns, which have occasionally nested with the least terns, are another species of special concern in Massachusetts. Another uncommon species inhabiting the sandy soils of Crane Beach is the Fowler's toad. This is perhaps the

only place in Ipswich where these crepuscular animals can be found.

Behind the barrier beaches, Ipswich contains over 1,500 acres of intertidal land. In addition to providing critical feeding and staging areas for resident and migratory wading birds and shorebirds, most of this resource is an important habitat for shellfish. This habitat has made Ipswich the largest producer of soft-shell clams in Massachusetts, with over \$1 million worth harvested annually in recent years. Significant recreational shellfisheries exist for soft-shell clams, surf clams, blue mussels and oysters. For these reasons, the entire Ipswich-Essex Bay salt-marsh ecosystem has been designated an ACEC by the state. In 1990, the town increased the buffer zone (setback) in this entire area from 100 to 150 feet under the town Wetlands Bylaw.

Important finfish populations are also present in the estuaries, ocean, ponds and streams of Ipswich. Marine anglers seek striped bass, cod, mackerel, bluefish, pollack and flounder. Warm-water species such as bass, perch, pickerel, crappie and sunfish are common in Hood Pond and several smaller ponds throughout the town. Cool-water, state-maintained trout fisheries exist in the Ipswich River, Bull Brook and Dow Reservoir. The three large estuaries in town--Plum Island Sound, the Ipswich River, and Essex Bay--are spawning and nursery areas for many important commercial and recreational fish species. The Ipswich and Egypt rivers serve as spawning areas for anadromous rainbow smelt. An ice-shanty winter ice fishery near the Town Wharf has long existed for this important species, though recent mild winters have prevented the ice fishery's use during much of the past decade.

The waters of the beach and marshes are also valuable for waterfowl, especially in winter. During the cold weather, almost all the species of loons, grebes, ducks and geese associated with the Massachusetts shoreline find

their winter food supply along the Ipswich coast. At this time, harbor seals can be counted by the score at low tide. Foremost among the waterfowl is the black duck, a species long of concern in the Northeast because of steadily declining numbers. This problem is partly attributable to genetic swamping by mallards, which interbreed with black ducks. Another star performer is the osprey who began nesting in Essex County in the 1990s. It is now well established as a summer resident for the first time since the early 19th century.

In migration, the marshes and beaches at low tide provide critical habitat for shorebirds. The heavy pedestrian traffic on the beaches and the boat traffic just offshore are an ongoing problem for these migrating birds. They depend on the habitat for building up their reserves of fat for their long journeys north and south. The shorebirds migrate between their breeding grounds on the arctic tundra and their wintering grounds in South America. Such frequent interruptions cause them to fly much more than they normally would while feeding or resting, thus using up energy reserves needed for the journeys. The Open Space Committee is working with TTOR on means of better protecting these at-risk species in the Trustees' forthcoming management plan for the Crane Beach Reservation.

Another beach-nesting species is the bank swallow, which nests in colonies in the vertical dune surfaces along the beachfront. Their burrows constitute the only known bank swallow colonies in Ipswich. They too are vulnerable because of the passage of so many people and thus present another resource protection issue.

Inland wildlife is typical of the state as a whole, particularly that of the coastal plain. Streams contain two-lined salamanders and at least one, Gravelly Brook in Willowdale State Forest, holds the state-listed four-toed salamander. Vernal pools contain both spotted and blue-spotted salamanders (the latter is state-

listed), red-spotted newts, spring peepers, wood frogs, and the invertebrates are also associated with such habitat. Wet meadows are home for whatever few spotted turtles remain in the town. This is yet another state-listed species and it has been found in Willowdale State Forest. Other state-listed species recorded recently in Willowdale are two dragonflies, Georgia's emerald and the banded bog haunter.

Many of the town's vernal pools have been certified by the state under the provisions of 310 CMR 57, an activity that has recently increased with the active participation of the public schools in cooperation with the Conservation Commission. Certification of remaining vernal pools remains a critical task if these priceless resources are to be protected from development (**MAP 4A**). Once the vernal pools or their buffer zones are gone, the species that depend on them are doomed. They have no alternative reproductive habitat.

Nesting inland birds are as varied as the habitat, since each plant community has its own combination of species. The fieldwork done in the 1970s for the Massachusetts Breeding Bird Atlas Project confirmed about 120 species as

positively or probably nesting in the Ipswich area. This number is now over 130 due to additional field work and range expansions by several species, notably ospreys (see above), red-bellied woodpeckers, Carolina wrens and, most recently, common ravens. Some of the nesting birds are endangered, threatened or species of special concern as identified by the MassWildlife. They include, along with their habitats, least and American bitterns, common moorhen, pied-billed grebe and king rail (fresh marshes); golden-winged warbler (overgrown fields); sharp-shinned hawk (forests and specifically Willowdale State Forest); and upland sandpiper (pastures). Both pied-billed grebes and least bitterns have nested in a marsh in Willowdale State Forest since 2000. Sharp-shinned hawks nested three years running in an adjacent pine stand. The varied habitats of these species, especially undisturbed freshwater marshes, are of critical concern to an open space plan and are addressed in the action plan in **SECTION 9, Objective 3-2**.

The mammal populations of Ipswich are changing, as some species previously extirpated from the area have recovered farther north and west and have moved back in on their own.



Foremost among these are the beaver, the fisher and the coyote. Many beaver families now live in town, which certainly presents some issues of altered habitat, sometimes in conflict with the interests of their human neighbors. The other two species have been increasing steadily in recent years in forested and agricultural areas. This encouraging trend enhances the balance of species by putting natural predators back into the equation. The white-tailed deer population is another matter. It had burgeoned, along with Lyme disease, in the absence of natural predators until checked by regulated hunting starting in the 1980s. Coyotes may take a few deer, but their main prey is small mammals. Thus, controlled hunting in the eastern sections of town will most likely need to continue if the deer population is to remain healthy.

Hunting is a form of recreation for some residents, though not all the hunters are from Ipswich. Significant populations of upland species (rabbit, deer, grouse, pheasant, squirrel and now wild turkey) are hunted in season on public lands such as the Town Farm, the western section of Willowdale State Forest, and Plum Island (very limited), as well as on private land with landowner permission. Several species of waterfowl are hunted over the extensive Ipswich marshes during the fall and winter waterfowl seasons. This is especially important to keep the large feral Canada goose population in check.

Other recreational values of the town's wildlife, such as birdwatching, herptile and mammal study, canoeing, kayaking and photography, are also popular and are discussed in section 4D. Many corridors still exist for the movement of non-avian wildlife because of the amount of open space in the town. These corridors must be protected if our wildlife legacy is to remain healthy, for countless studies have shown conclusively that fragmentation of wildlife habitat has a profound, deleterious impact on species diversity.

4F. Scenic Resources and Unique Environments

The DCR in 1981 completed a Scenic Landscape Inventory of the entire state in order to provide a new comprehensive framework to guide acquisition and conservation efforts. That inventory includes a standard rating system for landscape quality using the three classes of Distinctive, Noteworthy and Common, in descending order of attractiveness.

According to the inventory, Ipswich has some of the finest coastal scenery in the Commonwealth, as well as outstanding farmland and river scenery inland. Except for the developed center of town, most of the land area of Ipswich is designated "Distinctive" or "Noteworthy" by the inventory staff, making Ipswich one of the richest areas in the state for its scenic resources and unique environments. By comparison, "Distinctive" landscapes make up about 4 percent of the Commonwealth, "Noteworthy" about 5 percent and "Common" about 91 percent.

MAP 3 shows the scenic landscape using DCR criteria: waterways, scenic roads, and the cultural and historic areas. In Ipswich, there is also Crane Beach Reservation, part of the Parker River/Essex Bay ACEC. These areas include over 20,000 acres of salt marsh, barrier beach, tidal rivers, mudflats, and upland islands extending from Gloucester through Ipswich and four other towns to the Merrimack River (collectively the Great Marsh). In addition, Ipswich has no fewer than 271 homes, buildings and other structures listed by the Massachusetts Historical Commission as historically significant. Included in this number are three historic cemeteries, 52 houses on which the Ipswich Historical Commission holds preservation agreements, and the Great House on Castle Hill (the centerpiece of the Crane Estate), listed on the National Register of Historic Places as designated by the National Park Service.