Town of Orleans
Massachusetts

Conservation, Recreation and Open Space Plan

Window on the Cove, Orleans

May, 2006
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SECTION 1 - PLAN SUMMARY

A. Background
A state-approved, current municipal Conservation, Recreation and Open Space (CROS) Plan is required for eligibility for grants and reimbursements administered through the Massachusetts Executive Office of Environmental Affairs. These aid programs include the state's Self Help, Urban Self Help and Federal Land and Water Conservation Fund. In the 1980's the Town of Orleans obtained a total of $1,347,500 from these sources towards the purchase of open space. Since 1990, an additional $906,000 has been obtained to offset purchase prices on acquisitions. The 2006 CROS Plan is intended to comply with the requirements of EOE A, as expressed in the Open Space Planner's Workbook. The eligibility of the previous Orleans open space plan (drafted in 1984, updated 1987, 1990, 1994, and 1999) expired in December of 2004. This plan will allow the Town to remain eligible for this valuable funding source and be a guide to conserve Orleans' natural resources, preserve its open space and provide ample opportunities for recreation for its citizens.

B. Features of the 2006 CROS Plan
- Includes updated, current information on land use and open space acquisitions.
- Details preservation techniques for less-than-fee acquisition, and non-regulatory open space approaches (public education, public tree protection).
- Recommends long-term programs to respond to the town's recreation needs.
- Considers new handicapped recreation facilities.
- Consistent with the 2001 Orleans Comprehensive Plan and 2006 Comprehensive Plan Update.
- Sets realistic open space objectives for town agencies to achieve.
- Considers impacts of the Cape Cod Land Bank and the Community Preservation Act.
SECTION 2 - INTRODUCTION

A. Statement of Purpose

Orleans' Conservation, Recreation and Open Space Plan is intended to provide a framework for decision making by its residents. The purpose of the plan is to serve as a guide to responsible action to conserve Orleans' natural resources, preserve its open space and provide ample opportunities for recreation for its citizens.

B. Planning Process and Public Participation

The Executive Office of Environmental Affairs' Open Space Planner's Workbook: A Companion to the Open Space and Recreation Plan Requirements, revised February 2001, was used as a guide to preparing the plan. The 2006 Conservation, Recreation and Open Space (CROS) Plan update was accomplished by the Orleans Open Space Committee, Orleans Recreation Committee and staff assistance by the Orleans Planning Department. The Conservation Commission and the Recreation Department were consulted during the formulation of the Plan. The Conservation Administrator, Planning Director, Parks and Beaches Superintendent, Water Superintendent and Health Agent were also helpful in the organizing of much information in this plan.

One of the primary tasks undertaken to update the Plan in 1999 was to conduct a survey to determine residents’ attitudes and opinions about open space and recreation. The survey, based on an example in the Open Space Planner's Workbook, was mailed to every household in the town. A copy of the 1999 survey appears in the Appendix. A total of 3,048 surveys were distributed and 655 surveys were returned, many with extensive comments. The 22% return on a mailed survey is considered excellent. The survey was used in conjunction with interviews of the Conservation Administrator and Recreation Director to develop the Goals and Objectives for the plan.

For the purpose of updating this plan a similar survey was consulted. In 2005 the Orleans Planning Board and Planning Department conducted a survey of Residents and Taxpayers. This survey, done in preparation for the 2006 Comprehensive Plan Update, confirmed many of the findings in the 1999 OS&R survey demonstrating that it is still a useful tool. This 2005 survey is described in greater detail throughout the text of this plan.

The Open Space Committee, Conservation Commission, and Recreation Director helped to develop the Goals and Objectives, for the CROS Plan. As sections of the plan were completed, they were reviewed by the committee, and revised to include committee members' comments, providing additional input into the final document. The Compact of Cape Cod Conservation Trusts, Inc. provided inventory analysis.

The 2006 CROS Plan will be closely linked to the Local Comprehensive Plan. The Comprehensive Plan, approved in 1999 by the Town and Cape Cod Commission and amended in 2001, is currently being updated for 2006.
SECTION 3 - COMMUNITY SETTING

A. Regional Context

One of fifteen Cape Cod towns, Orleans primary open space & recreation attraction is its access to water resources, primarily salt water, but also freshwater ponds. The town has four distinct tidal shorelines, each with a different allure: the broad flats of low tide on Cape Cod Bay; the steep bluffs and salt marshes of Town Cove and Nauset Harbor; the long, soft strand of Nauset Beach on the open Atlantic; and the meandering crenellation of Pleasant Bay. Orleans is one of but a few U.S. towns where one can watch the day's sun rise and set over the ocean.

Orleans has always been a crossroads town. Its location at the juncture or "elbow" of Cape Cod's "bare and bended arm" assures its significance in the natural and cultural history of the Cape. Geologically, Orleans represents the true intersection of the Cape Cod Bay Lobe and the South Channel Lobe of the retreating Wisconsin Glacier 15,000 years ago. Prehistorically, the major trans-cape trails of the native inhabitants merged in Orleans. The very name chosen for this part of the Cape was "Nauset", an Algonquin term meaning, "at the place between".

Orleans today continues its crossroads tradition. Located halfway between Hyannis and Provincetown, it is considered the Lower Cape's commercial center at the confluence of the Cape's three major highways, Routes 6, 6A and 28. This phenomenon has placed extraordinary pressures for growth and development on the town, commercially and residentially. Orleans' physical beauty has always ensured that it be not simply a gateway, but a destination.

Not surprisingly, the town has concentrated on water access as its primary open space emphasis over the years: beaches, landings, public docks & piers. Much of its aggressive open space acquisition program of the 1980's included a shorefront component. As a booming seaside vacation/retirement spot, this focus has been consistently ratified by the voters.

Orleans shares municipal boundaries with four other communities: Eastham, Chatham, Brewster, and Harwich. Orleans shares Nauset Harbor, Town Cove and Rock Harbor with Eastham; Namskaket Marsh, Baker's Pond and Orleans' main groundwater supply with Brewster; and Pleasant Bay with Harwich, Brewster and Chatham. While overlapping jurisdiction normally leads to fractured natural resource management, Orleans and its neighbors have made great strides in cooperating on resource management ventures with the support of local officials in each relevant town. Brewster, Orleans and Eastham have joined to construct and operate the first multi-town septage treatment plant on the Cape. Orleans appropriated $1,450,000 and Brewster close to $1,000,000 dollars to preserve to preserve 36 acres and shoreline around Bakers Pond. Orleans and Chatham have agreed to manage vehicle use on shared Nauset Beach through mutual covenant for forty years. Orleans is one of several Cape towns hosting the popular Cape Cod Rail Trail, primarily a bikeway, though the Orleans section may need the most help in connection of segments.

An important cooperative environmental effort was completed in 1998 with the approval of the Pleasant Bay Resource Management Plan. A management alliance has been formed with Chatham and Harwich to implement appropriate management techniques to protect the bay so that it can be used and enjoyed by future residents.

There are several potential local and regional threats to the quality of resources and open space in Orleans. Continued traffic volume increases associated with growth may cause adverse effects on
the environment. A study by the Cape Cod Commission indicates that winter traffic volumes on major roadways in 2015 will be equivalent to current summer traffic, a daunting proposition.

Another possible concern is the commercial and residential development in the areas of Brewster that are located over the zone of contribution to Orleans public water supply wells. In the last decade the once sparsely populated area has seen the development of an industrial park, two golf courses, and several large residential subdivisions. Joint efforts are being made to work with the Town of Brewster to reduce future growth in the areas that are within the zone of contribution to the Orleans Wellfield. Reviews are pending with the MA Department of Environmental Management.

From the south, the 1987 breach of Nauset Beach in Chatham continues to provoke changes in tidal volumes, erosion, and shellfish distribution throughout Pleasant Bay. While the effects of this natural break are more dramatic in Chatham, Orleans too has noticed ecosystem changes. Dune washovers during extreme storms and migration of sand via the immediately offshore longshore current continue to change the beach annually. Tidal range increases have caused changes in erosion rates and sediment transport. Requests for seawalls and other shoreline structures have increased dramatically. Over one mile of seawall requests from private landowners on Pleasant Bay and Nauset Inlet have been approved since 1991 to prevent land erosion.

Although about 900 acres of Orleans is within the Cape Cod National Seashore, the presence of the National Park Service is perhaps felt less in Orleans than any of the six Cape Cod National Seashore towns except Chatham. This perception is based on the facts that the Seashore boundary includes only the uninhabited areas of Nauset Beach and some of the islands of Pleasant Bay, and that the town actually owns the beach and has primary responsibility for managing use of the area.

B. History of the Community

"Settlement was usually strung out around the harbor and along the roads that led to it with only a moderate commercial and institutional core at the center." This statement, published in a 1987 history of Cape Cod by the Massachusetts Historical Commission, pertained to Cape Cod in general and certainly applied to colonial Orleans. In Orleans' case, the harbor was Rock Harbor, the road was Main Street and the small core was fixed at its junction with County Road (now Cranberry Highway or Route 6A). These linear cores only gradually extended outward over the centuries. Most of Orleans was composed of large, dispersed farms, particularly in South Orleans where the soil was particularly fertile for grain. Through the 1800's, Orleans was the Cape's premier grain-growing town, producing a surplus for trading with Boston.

Trade was conducted out of Rock Harbor, then as now, a marginal port capable of servicing only coastal packets and shallow draft vessels owing to the tidal creek's narrow width and extensive flats. Rock Harbor flourished as the local port through the 18th and 19th century. In the 1800s, salt made in Orleans saltworks was also an important export. The Orleans militia repulsed a British landing force at Rock Harbor during the war of 1812.

Due to their tricky channels, hazardous inlets and distance to maritime trading routes, Pleasant Bay and the Nauset Marsh systems were more important as local subsistence grounds, for finfish, shellfish, fowl, and salt hay, rather than as navigable ports. Snow Shore on Nauset Harbor was lined with fish sheds and flakes where catches were cured for the Boston market.
South Orleans was the area reserved for the Nauset Indians in 1660 as their Potanunquit (or Portanimicut) village. This was one of the three most important tribal settlements on the Cape during the colonial period, according to the Massachusetts Historical Commission.

A small town in area compared to other Cape communities, and always considered a small town in absolute population, Orleans has consistently had a high density of population relative to other Cape Cod towns. By 1797, when Orleans "hived off" from Eastham and was incorporated, the town had over 1,700 residents. Like most Cape towns, Orleans lost population (down to 1,300 by 1870) due to economic recession and downturn in the maritime professions around the Civil War period. But the completion of the Old Colony Railroad through Orleans by 1864 and its extension down-Cape through the 1870s assured Orleans of growth, servicing railroad trade and, more importantly, summer vacationers.

In the 20th century, vacation homes sprang up throughout Tonset and Nauset Heights and in scattered spots elsewhere. Since 1950, residential development for seasonal visitors, retirees, and residents drawn by Orleans' emerging commercial dominance, has spread throughout town. Its most dramatic impacts are perhaps seen on the Barley Neck Farm Fields, where the town's best agricultural soils have been displaced, and in South Orleans, previously the least developed part of town.

Unlike most Cape towns, Orleans is so interwoven with coastal shoreline that it never had the extensive interior woodlands of other towns, such as Brewster and Eastham. These forests are associated with cheap land and provide areas for future municipal needs. For instance, the backwoods of Brewster in the rapid-growth 1980's not only accommodated large developments, but also provided large land areas for town wellfields, public golf courses, a 1,000-acre conservation area (Punkhorn) and 100-acre industrial park. Orleans will never have this same opportunity for satisfying expansive future municipal needs. In the 1950's, Orleans did assemble the Cape's single largest town wellfield, approximately 500 acres, in its "backwoods" along Route 6, and purchased a second 14-acre wellfield on Quanset Road in 1986. Additional acreage for wellfields appears to be limited. Also, a 1986 "Community Development Plan" for Orleans likewise considered it "impractical" to look for land sufficient to create a future industrial park.

A scarcity of large tracts of vacant land means that Orleans must think small and creatively when it comes to planning, whether for open space or commercial development. Innovative infilling of existing business zones is more appropriate than development of new industrial parks. Likewise, expanding and linking existing conservation areas may be more useful than contemplating large purchases.

C. Population Characteristics

The town has a year round population of 6,692 people. The Town’s population has effectively doubled between the years of 1970 and 1990 (3,000 to 6,000), an annual growth rate of 3.6%. Since the 1990’s Orleans has experienced an average annual growth rate of 1.6%. While the rate of growth in the 1990s has been less than that of the 1980s, the town is expected to grow to over 10,000 residents. This population growth has placed a strain on all municipal services, including our recreational facilities and open space.

It has been estimated that the seasonal population is approximately three times the year-round population. From a statistical viewpoint, Orleans has a higher percentage of year-round occupancy.
than most other Cape Cod towns. U.S. Census figures indicate that in 2000, 61% of homes were occupied all year. Orleans' has a higher retiree population, although the percentage of families with school-age children appears to be diminishing based on school enrollment trends.

The majority of the growth in Orleans has been associated with an influx of retirees. Orleans' population is the oldest in Massachusetts (2000 census). There has also been a dramatic shift in wealth of residents, so that per capita income exceeds the state and county averages. The population characteristics seem to indicate that while recreational facilities of all types should expand to serve all residents, emphasis should be placed on opportunities for older citizens.

Walking trails, scenic lookouts and sidewalks may be more appropriate in Orleans than active recreation facilities. The 1994 survey for the Orleans Local Comprehensive Plan revealed that sidewalks should be a public priority. The 1999 Open Space survey and 2005 Planning survey corroborated these findings and emphasized a need for passive recreation over active recreational facilities. In general, then, passive recreation might be emphasized over active recreation to serve the needs of Orleans' expanding older population.

The economy of Orleans is still largely dependent upon the tourist trade. The largest employment sectors are wholesale and retail trade, services, and real estate/finance. Many of the jobs in these industries are directly related to the retiree population in the town, making them a major economic force in the community. There is a trend in the economy away from tourism and toward an increasing share of support from the retirement community. New home construction, predominantly for retirees and seasonal residents, is a major component of the local economy. As stated previously, it is unlikely that industry or other large-scale commercial enterprise will enter town or consume huge chunks of open space. New businesses will be accommodated in existing business zones, clustered primarily along Route 6A and in the Orleans Industrial District. Remaining open spaces are more likely to be threatened by residential development.

D. Growth and Development Patterns

Development was once concentrated along a few main roads. It has spread out to all corners of town, primarily over the past 30 years. Orleans still has a "small town" atmosphere appreciated by its citizens. The rural seaside charm is still extant in views of historic homes, glimpses of salt ponds & marshes through the trees, and a few cranberry bogs. The building activity of the 1980s and 1990s resulted in the construction of over 1,300 new single-family homes. Because most of these homes were built on 40,000 sq. ft. lots or larger, a suburban pattern has emerged in many parts of town. But even in and around neighborhoods there are remaining unspoiled natural areas. These are due primarily to the presence of wetlands and land preserved by the Town and the Orleans Conservation Trust, the town's largest private landowner.

The zoning classification of Orleans is largely residential. The R-40 District, which requires 40,000 square feet of land area for each buildable lot, encompasses 90% of the community’s upland. A business corridor has been established along Route 6A from Brewster to the Eastham rotary. In recent years, the Town has reclassified significant portions of this area from General Business to Limited Business to avoid continued commercial sprawl. Small Rural Business Districts exist in South and East Orleans. The Town has an Industrial District of approximately 100 acres in size that provides numerous support services to residents.
There is no sewer service in Orleans. All wastewater disposal is through private septic systems or small treatment facilities. A septage treatment plant has been operating since 1990 to process wastes pumped from on-site subsurface disposal systems. Lack of sewers has not hampered the spread of development, as most upland areas contain Carver coarse sands and pass percolation tests easily. Certain business uses have been curtailed due to state requirements for new treatment systems, especially in the Village Center where lot sizes are small.

The major issue associated with sewage disposal in Orleans is the effect of nutrient loading on groundwater and coastal waters. Conventional septic systems effectively remove bacteria and most pathogens from sewage effluent prior to its release through a leaching area. They do not remove nitrogen to a significant degree. Nitrogen, primarily in the form of nitrate, passes through the soil and into the groundwater table where it is transported in the path of groundwater flow. Eventually, the groundwater table reaches a place where it flows into and mixes with surface waters or a pond, wetland, or coastal area. Increased amounts of nitrogen in salt water ecosystems causes excessive plant growth which leads to eutrophication of the water body. For this reason, the Town will have to address sewage disposal practices in the future if it wishes to retain high water quality throughout the town.

Town water service extends throughout town via over 100 miles of mains reaching 98 per cent of buildings in town. Town regulations require new subdivisions to install public water. A 1998 Water Supply Master Plan indicates several actions that should be taken in the future to ensure an adequate supply of water for public needs. The Town currently has 7 wells in the system and is developing an 8th well to meet projected future demand. Orleans withdraws its water from the Monomoy Lens, a shallow sandy sole source aquifer. Since there are no other sources available, protection of groundwater quality is of utmost importance.

The existing road network provides access to most areas of the town. There are approximately 118 miles of roads in the town, of which 53 miles are publicly accepted roadway. Natural gas and electric services are readily available from private suppliers.

The town must assume, therefore, that development will continue to consume open spaces throughout town. The 2004 Orleans Build-Out analysis, completed by the Planning Department for the Comprehensive Plan Update, concludes that over 1,800 new single family homes could be constructed in Orleans. This would represent a 35% increase in the number of homes and does not take into account Accessory Apartment development that would push this growth rate much higher. The effect of such a maximum build-out development scenario would severely reduce open space in the community and diminish the semi-rural character that residents now enjoy. Other impacts would include increased traffic congestion, stress on public services, and potential impacts to environmental resources. It is therefore in the best interests of residents that significant efforts to preserve open space be continued to protect strategically targeted areas to the greatest extent possible.

Citizens’ strong desire to protect open space has been demonstrated by their Town Meeting votes to purchase over $15 million worth of conservation and recreation land between 1987 and 2005. The Town received over $3 million in state and federal grants, as well as private gifts, towards these purchases. The pace of development has increased and some observers would suggest that Cape Cod real estate development will be less prone to a downturn than other regions because of the desirability of seasonal and retirement homes and the finite amount of available space on the
Residents definitely feel their quality of life is being threatened by development, and have expressed a willingness to preserve land from development wherever possible.

Orleans has been one of the more active towns on Cape Cod in educating its populace on the benefits of preserving open land. It was one of the first towns to establish an Open Space Committee, by Town Meeting action in 1985. Orleans citizens’ consensus for protecting land was reflected in its vote in November 1998 for the Cape Cod Land Bank in which its voters supported it with a 71% plurality, the highest percentage of all 15 towns on Cape Cod. Furthermore, in 2005 the Town adopted the Community Preservation Act and enabled a Community Preservation Committee that will take the place of the Land Bank. The Community Preservation Committee will now be responsible for Open Space protection funding as well as support it other areas of interest.
SECTION 4 - ENVIRONMENTAL INVENTORY AND ANALYSIS

A. Geology, Soils, and Topography

Orleans lies at the confluence of two different glacial lobes: Harwich outwash plain on the west and the south, and Nauset Heights plain on the east. The town is generally lower in elevation than other Cape municipalities. The highest ground is along Route 6 (Mill Hill at the Route 6A interchange is 120 feet high). The Cape Cod Bay shoreline is very low and susceptible to coastal flooding and high storm winds. Orleans Center and East Orleans are generally flat at elevations below 50 feet high, though there are some steep bluffs to the salt water shoreline at Town Cove, Nauset Heights and Pochet and Barley Necks. South Orleans is more irregular, having the characteristic knob and kettlehole landscape found elsewhere on the Cape.

Most of the soil throughout town is derived from glacial deposits, consisting of coarse sands, sandy loams and gravel, with intermittent clay layers in some locations. Topsoil is generally thin and friable. The exception is East Orleans, particularly Barley Neck, Tonset and Nauset Heights where pockets of soil of prime, state or local importance for agriculture are found. Most of these sites have been consumed by residential development in the past thirty years. Peat from organic sources can be found in low areas around bogs, swamps and marshes. Barrier beaches composed of dune sand are extensive at Nauset Spit and Namskaket.

Surficial geology of Orleans determines natural communities and has an influence on human development in the town. The town's sandy soils drain rapidly, which generally reduces erosion, but allows contaminants to reach the water table readily. A common complaint of Cape Cod health officials is that sandy soils are unsuitable for development because they percolate too quickly rather than not quickly enough. Contaminants from wastewater, then, can easily reach the aquifer before biological and chemical cleansing in the soil can occur.

To date, neither soils nor topography, with the exception of wetlands, has proven to be an impediment to development. Therefore, relying on environmental constraints to development is not a viable method for retaining open space in Orleans.
Orleans CROS Plan: Topography
B. Landscape Character

The most appealing aspect of Orleans' landscape is its 45 miles of coastal shoreline. The human eye delights in scenes where land meets water, and it does so in Orleans with dramatic frequency and variety. According to a 1985 Massachusetts Coastal Zone Management study, Orleans has 1,377 acres of salt marsh, more than any other Cape Cod town but Barnstable. The broad sweep of these "meadows", as the colonists knew them, is breathtaking from the Rail Trail at Namskaket or from boats on Pleasant Bay. The scene at Nauset Beach is bolder, with frequent large waves breaking in a curl down the long beach.

The more intimate shoreline scenes are prized as well, such as the winding, narrow channels of The River or the keyhole harbors at Quanset, Paw Wah, Arey's and Kescayogansett (Lonnie's) Pond. The large tidal range (ten feet on Cape Cod Bay, three to four feet elsewhere) assures a varied viewing experience from the same location throughout the day.

A 1991 report from the International Countryside Stewardship Exchange found that Cape Cod residents should be encouraged to keep some of their "secret places" secret, so that these quiet, private open spaces are not overrun by tourists. In order to preserve "secret places," however, the town must ensure that there are adequate open space facilities, such as beaches, which can accommodate larger numbers of visitors.

The town's aggressive land acquisition campaign of the 1980's and 1990's reflects the townspeople's desire to hold these shore scenes dearly. Three of the most popular purchases, Kent's Point, Paw Wah Point and Sea Call Farm include scenic bluffs overlooking salt water. It should be noted that all three spots are as equally worthy to look at as from. Orleans' many boaters benefit by preserving, as much as possible, the natural qualities of the shoreline they admire from the water. To better preserve the appearance of the shoreline, construction setbacks from bluff tops are required by zoning and a Conservancy District prohibits new non-water dependent structures below the four-foot contour.

The scenic quality of the Orleans' coastline was underscored in the 1983 "Massachusetts Landscape Inventory", conducted by the Department of Environmental Management. That survey classified Nauset Beach as a "Distinctive" landscape (the top category statewide, including only four per cent of the Massachusetts land mass) and the Cape Cod Bay shoreline, Nauset Marsh and most of Pleasant Bay as "Noteworthy" (the second highest ranking, consisting of only five percent of the statewide land mass.)
From 1995 to 2000 the Orleans Open Space Committee, in cooperation with the Commonwealth, has focused one of its primary efforts on the acquisition of rights to protect for public use the shoreline on Cape Cod Bay between Namskaket Creek at the Brewster Town line and Orleans’ Skaket Beach. Since 1994, a combination of Town, Barnstable County and Commonwealth efforts have resulted in an estimated 2,410’ of protected shoreline and habitat for the “Sea Path” project. Town efforts have contributed significantly to extending the “Sea Path” coastal walking path from Brewster’s Nickerson State Park lands toward Eastham and Wellfleet. These acquisitions have been as follows:

- **Alemian**: a Town acquired Conservation Restriction over 3.97 acres, dunes and upland, with 330’ bayfront. A Self-Help Grant of $156,000 assisted in this purchase.
- **Hamilton**: 0.91 acres with 355’ bayfront, in fee gift to Town by Community of Jesus.
- **Gavigan**: 1.00 acre with 350’ bayfront with rental cottages in fee by the Commonwealth DEM for $525,000, coordinated with Town.
- **Gavigan**: 1.92 acres off the Bay for wildlife corridor from Bay to interior wetlands and marsh. In fee $325,000 by the Town.
- **Furst**: 17.00 acres with 1,375’ bayfront and fragile dune and wetlands bordering Namskaket Creek and running north to the Alemian 1994 CR.

The above acquisitions have protected almost 25 acres providing safeguards for an important, fragile barrier beach at the southeast corner of Cape Cod Bay and guaranteeing coastal walking opportunities in perpetuity. The most recent Furst acquisition received the endorsements of the Town of Brewster, the Cape Cod Commission, and the Association for the Preservation of Cape Cod, the Mass. Audubon Society, and the Department of Environmental Management.
C. Water Based Resources

1. Salt Water Bodies
As previously discussed, the town's landscape character and salt water shorefront are the primary focus of informal outdoor activities and form the background for the town's tourist based economy, including swimming, fishing, shellfishing, and boating. These activities are fairly evenly spread throughout the town's four marine areas: Pleasant Bay, Cape Cod Bay, Nauset Harbor/Town Cove, and the Atlantic Ocean. Major town bathing beaches are at Nauset Beach and Skaket Beach, though swimming at the latter is limited to periods of higher tide due to the extensive tidal range and subsequent tidal flats extending from shore. Primary boat anchorages exist in Rock Harbor (the only dredged boat basin), Town Cove, Pleasant Bay, Quanset and Meetinghouse Ponds, while smaller mooring areas are found at Nauset Harbor's Snow Shore and Mill Pond, and the Pleasant Bay salt ponds: Lonnie's, Paw Wah, Quanset and Arey's Ponds.

Surfcasting for bluefish and striped bass is a popular pastime along Nauset Beach. Recreational fishermen use the Town Beach as well as more remote areas of the barrier beach accessible by foot or off-road vehicles (ORV). The northern section of Nauset Beach has strict ORV limits imposed to protect nesting piping plovers and rare species of terns, which are also protected on the stretch between the Town Beach parking lot and the Chatham border. Bottom fishing, especially for flounder and eels, is popular both in Pleasant Bay and Town Cove.

There are 26 town landings on the fresh and salt water shorefront. Nine of these have ramps for boat launching. The town has completed the process of having all town landings surveyed, and an improvement program is underway.

2. Fresh Water Bodies
There are no navigable freshwater rivers or streams in Orleans, though there are small, shallow fresh headwaters of estuarine creeks, such as at Pochet and Namskaket. The town's primary freshwater resources are its 17 ponds and lakes, with a total area of 179 acres. Four of these ponds are greater than ten acres in size, which classifies them as Great Ponds of the Commonwealth. The public owns Great Ponds and is entitled to access, while other ponds can be owned privately by surrounding landowners and public access can be prohibited. Orleans' Great Ponds are Bakers and Cedar Ponds, and Pilgrim and Crystal Lakes. The 1987 town purchase of one acre at the south end of Crystal Lake (Dickinson Memorial Beach) has provided handicapped access to a small beach there.

Town landings exist at Pilgrim and Crystal Lakes Not surprisingly, these ponds are some of the more extensively used ponds for recreation, boating, swimming, and fishing. The Recreation Commission sponsors swimming classes at Pilgrim Lake as well as at Meetinghouse Pond, a saltwater estuarine pond, each summer. Crystal Lake and Baker's Pond are stocked with trout each year as Public Recreational Fisheries by the Massachusetts Division of Fisheries & Wildlife.

The ponds in Orleans are classic kettlehole ponds, formed as deep depressions in the glacial outwash left by stagnant ice blocks. Water depth in Baker's Pond is nearly 50 feet. Most ponds are isolated; that is, they do not drain to the sea. The surface level of such ponds are dependent on the
fluctuation in the groundwater table, and often expose a wide shore during the summer when the water table is low. These exposed shorelines comprise the unique habitat called "Coastal Plain Pond Shores" which harbor rare and endangered plants, such as Plymouth gentian and long-beaked bald rush. Pond shores of prime importance for rare plants include Baker's, Gould's, Uncle Israel's Ponds and the Old Swamps Pond in the town watershed. Ponds with artificially controlled outlets, such as Cedar Pond and Pilgrim Lake, do not qualify as prime pond shore habitat, but do host important anadromous fish (herring) runs.

3. Surface Water Quality

All of Orleans' waters are generally of high quality, though problem spots exist. The Massachusetts Surface Water Quality Standards (314 CMR 4.00) of the Department of Environmental Protection lists all of the marine waters of Orleans as Class SA, the top salt water ranking, meaning they are an "outstanding resource" whose purity should be kept suitable for all types of water recreation, including swimming and shellfishing. All freshwater ponds within the Pleasant Bay and Cape Cod Bay Areas of Critical Environmental Concern are included in Class A, the top freshwater ranking. These ponds, including Pilgrim Lake, Crystal Lake, Sarah's, Uncle Seth's, Cedar and Gould's Ponds, must be maintained at the highest level of purity and cannot be degraded by point source discharge, such as sewer outfalls. All other freshwater ponds are classified "B", which means they must be maintained at "high quality", with no direct discharge introduced.

Cedar Pond has a water quality problem caused by an overabundance of roosting birds. Utility wires owned by Commonwealth Electric Company hang over the pond, and cormorants roost upon the wires by the hundreds. The droppings from the birds have fouled the water and caused adverse impacts to neighboring residential properties. In response to the problem, the Town has obtained permission to shoot the birds if necessary. In 1999, a regular program was begun to monitor the roosting population and to fire pyrotechnics in order to scare the birds away from the pond. The approach has been successful and has reduced the negative impacts associated with the roosting birds.
Table 1: Orleans Pond Inventory

<table>
<thead>
<tr>
<th>Pond Characteristics, Town of Orleans</th>
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<tbody>
<tr>
<td><strong>Ponds</strong></td>
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<tr>
<td>Baker’s Pond</td>
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<td>Boland Pond</td>
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<td>Cedar Pond</td>
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<td>Gould Pond</td>
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<td>Old Swamp Pond</td>
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<td>Pilgrim Lake</td>
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<td>Sarah’s Pond</td>
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<td>Shoal Pond</td>
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<td>Twinings Pond</td>
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<td>Uncle Israel Pond</td>
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<tr>
<td>Uncle Seth’s Pond</td>
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<tr>
<td>Wash Pond</td>
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<tr>
<td>Meadow Bog</td>
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<tr>
<td>Ice House Pond</td>
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Source: James A. McCann, An Inventory of the Ponds, lakes, and Reservoirs of Massachusetts: Barnstable County," University of Massachusetts, Amherst, 1969.- Town of Orleans, CCC Bathymetry study: 2005

4. Floodplains

Orleans participates in the Federal Flood Insurance Program, which requires that new shorefront development meet engineering standards for floodproofing. Flood velocity zones (or V-Zones,) land areas where storm surge or direct wave action occurs, are found along the shore at Skaket, Nauset Harbor, the seaward face of Nauset Beach and most of Pleasant Bay except in the extreme reaches of the River and Pochet Flats. A 1988 analysis by the Massachusetts Coastal Zone Management Office found that Orleans has two dwellings at Snow Point, clearly located in the V-Zone, and probably no more than 5 others are in the V-Zone on Nauset Marsh and Pleasant Bay. The Orleans Conservancy District, a zoning provision that prohibits non-water dependent structures built below the four-foot contours, and the state and local wetlands protection legislation, should help prevent future development in this high hazard area.
Landward of the velocity zones are other flood prone areas (A-Zones) in which standing waters can be expected during 100-year storm events. These areas, comprising approximately four square miles, consist mostly of salt marshes and shorefront uplands up to about the 15-foot contour. All esturarine shorelines in Orleans have some residentially developed areas in the A-Zone. There are some important commercial areas occurring there as well, such as the Second District Courthouse and the Cranberry Shopping Plaza (built 22 years ago on a filled-in cranberry bog) adjacent to Town Cove. Storm damage in these areas is typically associated with hurricanes. In 1991, Hurricane Bob caused havoc in Orleans with many fallen trees and some property damage. A greater threat to coastal properties in Orleans is erosion from the intense waves and winds of Northeasters, such as the Great Storm of 1978 and the Halloween Storm of 1991.

5. Wetlands

Wetlands, both fresh and salt water types, provide supporting habitat for most of Orleans' wildlife. Orleans contains an abundant diversity of wetlands, in type, size and distribution, scattered evenly throughout the town.

A 1990 University of Massachusetts study found that Orleans had 151 acres of freshwater wetlands, 15 acres of cranberry bogs and 994 acres of saltwater wetlands. A 1985 Massachusetts Coastal Zone Management Study identified 1,377 acres of salt marsh in Orleans. (This difference in salt marsh acreage figures is due to differences in methodology, not loss of habitat.) Orleans has more salt marsh than any other Cape Cod town except Barnstable, a town four times its size. A salt marsh's high biomass makes it excellent habitat for birds, shellfish, and finfish nurseries.

As with Orleans' ponds, most freshwater wetlands are dependent on water table fluctuations, rather than surface runoff, to ensure the soil saturation necessary for wetland plants. Wetlands are found everywhere including land at low elevations, perched locations, close to the water table, and the sand and gravel soils readily transmit groundwater through wetlands. Wetlands play an important role in filtering out contaminants from stormwater and reducing flooding during storms.

Two wetland types not previously mentioned include cedar swamps and vernal pools. The 1990 Critical Habitats Atlas for Cape Cod identifies six separate wetlands dominated by Atlantic White Cedar in Orleans. These forested wetlands are highly acidic and are uncommon throughout the Cape. These areas were once much more extensive before the trees were harvested in earlier centuries as lumber and to make way for agriculture. Most of the swamps are privately owned; however, a six-acre cedar swamp located at the head of Little Namskaket Creek is owned by the Orleans Conservation Trust and a 8.9 acre bog (Christian Bog) is owned by the Town in South Orleans. 

In 1998 the Town participated with the Orleans Conservation Trust in the protection of the 22.5 acre Namequoit Bog in S. Orleans (Map 70-34). The Trust purchased the Bog, including three upland lots, in a bargain sale for $185,000. Town Meeting approved the use of $100,000 of open space funds to buy a CR from the Trust in order to complete the acquisition. The area is an important recharge area bordering on Pleasant Bay.

At a November 1998 Special Town Meeting approval was received for the acquisition of the 7.85 acre Christian parcel and 8.9 acre bog (Map 75-80) for protection of mainly the upland habitat and maintenance of a wildlife corridor. The property includes an Atlantic white cedar swamp and will
help to protect it by stopping development of its borders. A Self-Help Grant of $250,000 was received to aid in the purchase of this valuable piece of open space.

Vernal pools were officially recognized as critical habitat in 1987 when the Massachusetts General Court amended the Wetlands Protection Act to include their protection. These small temporary ponds are crucial breeding grounds for woodland amphibians, such as wood frogs and salamanders. Orleans has forty (40) State-certified vernal pools.

Orleans also has extensive marine flats of the type found in open coastal areas, such as Cape Cod Bay extending a mile or more from shore. Both of these types of flats are an important recreational resource in the town. The firm, hard footing of the flats off Skaket are popular for activities ranging from shellfishing to walking to kite flying. The broad tidal flats of Cape Cod Bay are truly the most open of open spaces, with tidal flats extending nearly a mile from the high tide mark.

6. Groundwater Resources

In 1982 the U.S. Environmental Protection Agency designated all of Barnstable County as a Sole Source Aquifer in recognition of the region's complete reliance on groundwater as its potable water supply. Orleans is served by the Monomoy Lens, one of six discrete components of the aquifer. This lens provides water for the towns of Yarmouth, Dennis, Harwich, Brewster and Chatham as well. Orleans recognizes that inter-town cooperation is needed to manage the quantity and quality of this aquifer, and that uses of land outside the town borders may have a direct impact on water quality of the public water supply wells.

Cape Cod receives an annual average of 46 inches of precipitation. Of that amount, about 16 inches reach the water table underground to replenish or "recharge" the aquifer. The freshwater lens in Orleans is most substantial along the Brewster town line between Routes 6 and 28, which is also where the town's major watershed and public supply wells are located.

There are several groundwater impacts associated with development. The most difficult pollutant to deal with is nitrate loading. Nitrogen is a component of septic wastes and fertilizer use. When nitrates enter groundwater, they do not breakdown, but are carried through the water table, eventually coming out in a water body. These compounds are a known contaminant to drinking water, and at high levels cause human health problems, including so-called "blue baby" syndrome. A 1987 study found that concentrations of nitrate in Orleans' wells were very low and almost undetectable at some points. Local regulations limit the number of bedrooms per acre in the Zones of Contribution (or recharge areas), which should help protect the town water supply from future contamination. Orleans' Zone of Contribution to its major wellfield has among the highest percentage of protected open space of any on Cape Cod. In addition to the 500-acre town watershed, the 1800-acre Nickerson State Park in Brewster protects groundwater serving Orleans' wells. The Town has continued to acquire land in the Zone of Contribution, and this effort should continue in the future.

Orleans' wells currently test below the state standard for sodium of 20 parts per million (ppm) and do not pose a health risk for this parameter. A range of 10 to 15 ppm is typical for Orleans' wells and the Capewide average is 13 ppm. Recent concerns have surfaced, however, about the possibility of saltwater intrusion at the Quanset Wellfield (#7) if it is not pumped judiciously.

The Town Watershed provides other benefits besides groundwater protection. It contains five small ponds (Gould Pond and a second unnamed pond nearby, Wash Pond and two seasonal
ponds), which support coastal plain pond shore rare plant habitats. The area contains an extensive upland pine/oak forest. Though public recreation is not sanctioned, informal access is used by bicyclists, joggers, hikers and hunters.
D. Vegetation

The growing conditions, temperature, rain fall, soil type, on Cape Cod support several plant communities, some common only to Sandplains such as kettle pond shore vegetation with many rare species, sandplain grasslands, white cedar swamps, dunes, and pine-oak forests. Orleans also supports several plant communities associated only with salt water, salt marshes and eel grass communities. These unusual plant communities were altered by the activities of agrarian settlers between 1650-1900 with clearing forests for farmlands and overgrazing livestock and more recently by the introduction of invasive non-native plants and the reduction of native plant habitat in general in exchange for lawns and ornamentals.

Orleans has several kettle ponds such as Crystal Lake with rare sandplain plants such as Plymouth gentian, Sabatia kennedyana. Most of the kettle ponds in Orleans except for those in the watershed are developed with the majority of the owners altering the shoreline. Some owners have developed their properties to the extreme, with every plant removed and replaced with structures or invasive plants. Others have only created a walkway into the water. In many cases boats are left to scrape the bottom in the transition zone or in the area that emerges in years with a low water table where the majority of the rare plants grow.

Plants from sandplain grasslands are very rare in Orleans although some deed restrictions are keeping some properties in fields and some home owners prefer a native grass lawn of little blue stem, Schizachyrium scoparium. With the elimination of fires, which reduce the woody growth and encourage the native warm season grasses, fields are largely overgrown, many with red cedars, Juniperus virginiana.

Orleans is host to several white cedar swamps, Chamaecyparis thyoides, some with only a few trees as well as the 22.5 acre, Namequoit Bog and the 10 acre, bog that is partly within the Town owned Christian property. Many white cedar swamps were logged for posts and shingles or cleared for agriculture. The red maples, Acer rubrum, which prefer the same habitat, are growing in faster than the white cedars.

Orleans has several dune communities that thrive in areas of moving sand such as Nauset spit, a barrier beach. Dune communities are anchored by beach grass, Ammophila breviligulata and can withstand harsh growing conditions moving sand, and drought conditions.

The forest type presently common on Cape Cod, Pine-Oak is also drought tolerant and can grow on poor soils. Agrarian practices of the last several centuries left the soil without a protective vegetative cover and the humus and topsoil layers were blown away. By 1900, farming was in the decline and farm and grazing land began to succeed to pine-oak forests. Once pine-oak forests have stabilized an area other hardwoods such as Beech and Hickory begin to grow in.

The return of these forests was gradually outstripped by the development in Orleans, which increased the amount of lawns and ornamentals and reduced the area available for native ecosystems. Only a few areas in Orleans such as the watershed property and nearby Bakers pond area support native Pine-Oak woodlands. Without these uncultivated areas there will be no seed source for native flowers and trees.

Orleans has several large saltmarshes, such as Rock Harbor Creek and along Nauset Beach. Pockets of cordgrass, Spartina alterniflora, the dominant plant in the salt marshes on the Atlantic
Coast, grow occasionally along the shorelines. Cord grass reduces wave action and erosion and forms a significant part of the estuarine food web.

E. Fisheries and Wildlife

The theme of Orleans being a crossroads town, appropriate in its geology and geography, extends to its faunal populations and habitats as well. For not only does Orleans have an internal diversity of habitat types, but also it is situated at the juncture of two major wildlife zones: the Virginian and Acadian biogeographic regions. Cape Cod separates the warm Gulf Stream waters of Nantucket Sound (northern edge of the Virginian zone) from the cold Labrador Current waters of Cape Cod Bay (southern edge of the Acadian zone.) Marine species composition, from seaweed to squid to whales, is different between these two sides of Orleans. Orleans' Cape Cod Bay shoreline is also the innermost area listed as critical habitat for the endangered North Atlantic Right Whale.

Orleans' Pleasant Bay and Nauset Marsh are two of only five Cape embayments identified by the US Fish and Wildlife Service as important wintering areas for black ducks, a National Species of Special Emphasis. Many other shorebirds, such as the semi-palmated plover, use Orleans, the most easterly point on Cape Cod, as a stop-over point on the passages north and south along the Atlantic Flyway. The barrier beaches along Nauset are prime nesting habitat for terns and piping plovers, rare and endangered species.

In 1991 Orleans' Nauset Spit was the locale for a precedent-setting wetlands case when the town developed an off-road vehicle management plan to protect nesting piping plovers, a threatened species under federal law. This action was the first use of the state Wetlands Protection Act to regulate recreational vehicle use on barrier beaches. The town has cooperated with both Massachusetts Division of Fisheries and Wildlife and the National Seashore in monitoring the nesting areas throughout the summer.

1. Shellfish

Orleans is annually ranked as having one of the most productive shellfisheries among the 15 towns of Cape Cod. Again, the reason is related to diverse marine habitats and clean growing waters. Softshell and hardshell (quahaug) clams, and blue mussels abound. Pleasant Bay provides productive habitat for bay scallops, the most valuable shellfish species per pound on Cape Cod, and is also productive for clams and quahaug. Town Cove/Nauset Harbor produce clams, quahaug, mussels and occasionally scallops. Sea clams are found offshore on the wide flats of Cape Cod Bay. Quahaug are found in the deeper waters where scallops are also found sporadically. Oysters are one major recreational and commercial shellfish species not found in Orleans' coastal waters. A 1981 study found that Orleans has 10,370 acres of productive shellfish habitat, more than any other town in the county. This acreage includes 5,760 acres in Cape Cod Bay plus 1,152 acres in Town Cove and 3,456 in Pleasant Bay. These productive areas include intertidal flats, sub-tidal habitat, and productive eelgrass meadows, necessary for scallop production.

Harmful Algal Blooms (Red Tide)

Red tide, which is an explosion of dinoflagellate marine algae usually associated with seasonally-warmed water, has also resulted in shellfish bed closures periodically, particularly in the Town Cove/Nauset Marsh system. This condition occurred as recently as May 2005, and the system was closed for multiple weeks in the beginning of the summer. As filter feeders, shellfish accumulate
the algae's toxin in concentrations dangerous to human consumption, though not to the mollusk. When the algae bloom dissipates, the shellfish become safe to eat again.

Shellfishing is an important commercial resource as well as a popular tourist pastime in Orleans. There is always great harvest demand on the shellfish supply. Natural sets of shellfish have been enhanced through broadcasting purchased seed and, until the late 1980s, quahog seed was cultivated in the town's shellfish lab on Town Cove.

2. Fin-fish

Orleans' fresh and salt waters support a variety of marine (striped bass, flounder, menhaden, tautog, mullet, eel and sand sharks), freshwater (pumpkinseed, bass, trout, pickerel), and anadromous (alewife, blueback herring and shad) fish species. The latter group migrates from the bays into Cedar Pond and Pilgrim Lake each spring to spawn.

Amphibians (frogs, toads, salamanders) are found throughout the woods and wetlands of Orleans. Turtles include the rare eastern box turtle and the diamondback terrapin in Pleasant Bay. The Massachusetts Audubon Society maintains a herpetological atlas for Massachusetts, which should be consulted for additional information.

3. Mammals

Upland mammals in Orleans include the common suite: red and gray squirrel, white-tailed deer, raccoon, rabbit, skunk, opossum, shrews, bats, weasels, mice, and voles. In recent years, a new top-of-the-food-chain predator has moved into Orleans to compete with the red fox for territory: the eastern coyote. Sightings of this big predator have increased from rare to almost common. Residents now report coyote sightings routinely.

Wildlife corridors enable animals to migrate to new territories in search of food or breeding grounds. Biologists estimate that undisturbed linear areas of 300 feet in width are necessary for many of these species to feel comfortable for moving undetected. Owing to the dispersal of residential development throughout the town and its continuing saturation, wildlife corridors are fewer and more narrow than they once were in Orleans.

The only true trans-town natural corridor is Nauset Spit, which is in the Cape Cod National Seashore and extends from Nauset inlet south into the Town of Chatham. A discontinuous but important corridor might be west-east from Nickerson State Park to Pleasant Bay. The wetland systems along Kecayoganset (Lonnies) Pond, including Kent's Point, and the Namequoit River leading west from the Bay nearly meet the 500-acre forested town watershed. Route 28 is an impediment. From there this corridor extends to Bakers Pond and on to Nickerson State Park. In 1992 a chain link fence was erected along Route 6 partially to keep wildlife off the highway.

Shorter, intra-town corridors include Namequoit Point (from Viking Camp through Paw Wah Point to the Quanset Wellfield) and the South Orleans pond area (Uncle Seths, Shoal, Deep, Twinings and Sarahs Ponds). The salt creeks of Cape Cod Bay also provide neighborhood-level corridors.

F. Scenic Resources and Unique Environments

The aesthetic beauty of Cape Cod's natural resources are of primary importance to residents and visitors. Orleans abounds in beautiful natural scenes, many of which are also environmentally-critical areas, such as pond-shores, salt marshes, barrier beaches, embayments and cedar swamps.
Local voters have continously supported the purchase of open space in recent years, in part to preserve scenic areas, such as Kent's Point, Paw Wah Point and Sea Call Farm, though the substantial purchase of land around Baker's Pond was supported mostly on the basis of water quality protection.

As part of a statewide preservation effort, the Department of Environmental Management (DEM) conducted a survey in 1983 to assess the Commonwealth's scenic landscape inventory. The inventory uses three classes of scenic quality designated as "distinctive," "noteworthy," and "common." Distinctive landscapes include areas of the highest visual quality and include only about 4% of the Commonwealth. "Noteworthy" landscapes consist of somewhat less significant, although still important, visual quality and are limited to only 5% of the Commonwealth. The "common" landscapes comprising 91% of the Commonwealth's landscape, contain smaller sections of scenic quality but do not have the consistently high levels found in distinctive and noteworthy areas. The DEM survey classified Nauset Beach as a distinctive landscape and the Cape Cod Bay shoreline, Nauset Marsh and most of Pleasant Bay as noteworthy.

Orleans is bordered by water bodies on two sides that have been designated as Areas of Critical Environmental Concern (ACEC). This State designation (M.G.L. c. 21A, Sec. 7) has been accorded to Cape Cod Bay and Pleasant Bay. Cape Cod Bay is a nesting site of endangered species of turtles and birds. The Pleasant Bay ACEC is a complex estuary that provides breeding and nursery space for numerous economically important fisheries. Acquiring of open space in these areas helps to protect the integrity of the environment and ensure a healthy natural ecosystem for sustaining important fisheries.

G. Cultural Resources

The Orleans Historical Society lists more than 400 buildings that were erected before 1900. Cultural and historic points of interest in Orleans include the following:

- Rock Harbor which served as the commercial and maritime center during its early years and today is a popular boating harbor enticing fishermen from many parts. Local history states that the Orleans Militia repulsed a British landing force at Rock Harbor during the War of 1812.

- The Captain Linnell House is an exact copy of a French Villa. The house was built by Capt. Ebenezer Harding Linnell, captain of the clipper ship Eagle Wing. The house is now an elegant restaurant.

- The French Cable Station was constructed in 1890 to receive a direct wire from Brest, France. Cable was laid on the floor of the Atlantic Ocean in 1879 and continued in operation until 1959. Today, the station serves as a museum.

- Located on Main Street in East Orleans is the Meeting House, home of the Orleans Historical Society. It was first built as the Universalist Meeting House and contains historical artifacts of Orleans.

- Nauset Beach, lure for thousands of sunbathers, boasts a treasury of historical occurrences. Early explorers landed here - Gosnold in 1602, Champlain in 1605. The Mayflower passed here in 1620. The Sparrow Hawk was the first recorded shipwreck on the eastern seaboard, December 17, 1626. A German U-Boat shelled the coast of Orleans during World War I, sinking several coal barges.
• Snow's Shore, named for Stephen Snow, a Tonset settler in 1644, was lined with fish sheds and flaks where catches were cured and salted for the Boston market. On Tonset Road, by the Town Cove, is the site of the Hopkins Homestead. Giles Hopkins was a passenger on the Mayflower and settled in Orleans in 1648. The home of Joshua Crosby is located at the end of Tonset Road. He was a quarterdeck gun captain on the U.S.S. Constitution during combat with the H.M.S. Guerriere in the War of 1812.

• The Inn of the Yankee Fisherman, now a restaurant and inn was built by Capt. Aaron Snow in 1875 of lumber and cargo from a Maine schooner wrecked on Nauset Beach. Capt. Snow was a merchant dealing in coal, grain and lumber which was transported to Orleans in his schooner the Nettie M. Rogers. This was the beginning of H.H. Snow and Sons hardware store.

• The first Cape Cod Canal was called Jeremiah's Gutter, located where the Route 6 rotary now exists, which linked the headwaters of Boat Meadow Creek with Town Cove. This hand-dug route enabled small boats to float from Cape Cod Bay to the eastern, Atlantic shore without having to double the Cape at Race Point. Captain Cyprian Southack, sent by the Governor in 1717 to hunt down Black Sam Bellany of the shipwrecked pirate vessel Whydah was one of the first users of the Gutter in his fruitless search. The gutter was used during the War of 1812 for American vessels to escape British blockaders, but constant silting caused the canal to finally be abandoned.

H. Archeological Resources

Pleasant Bay may be the most important archaeological area in Barnstable County. According to archaeologist Fred Dunford of the Cape Cod Museum of Natural History, 10% of all the artifact sites recorded for Barnstable County by the Massachusetts Historical Commission fall within the greater Pleasant Bay area, the highest site density on Cape Cod. Most artifacts date from the Woodland period (beginning 3,000 years before present to 1,500 AD) when the native Nauset and Monomoyick tribes were establishing fixed settlements and farming as well as gathering food resources. Residential development, erosion associated with increased tidal range in the Bay and vandalism by amateur treasure hunters represent the greatest threats to this rich archaeological record.
I. Environmental Problems

As noted in previous sections, the impacts of continued residential development are a threat to open space and natural resources in Orleans. Water quality concerns, loss of wildlife habitat and corridors, blockage of scenic views, conversion of agricultural lands and other issues are all influenced by the economic pressure to develop vacant land to meet the demands of community growth. While the town cannot stop growth, a diligent planning and permitting process can guide this growth to areas best suited to accommodate it.

By historical accident, the Orleans Landfill is located adjacent to but outside the Zone of Contribution to the town's wellfields. The landfill has been closed, and solid waste from Orleans is transported to SEMASS waste-to-energy plant in Rochester, MA. The landfill capping project was completed in 2006. A voluntary recycling program is very active in Orleans.

Open sewage lagoons at the landfill were closed after the Tri-Town Septage Treatment Plan began operations off Route 6A. The plant treats septage waste from Brewster and Eastham in addition to Orleans. Monitoring of nearby Namskaket Creek has so far failed to reveal degradation of the marsh due to septage leachate from the plant.

The Town of Orleans has started the process of preparing a town-wide Comprehensive Wastewater Management Plan. The Town has recognized the need to take action to ensure the existing and future development does not adversely affect the fresh water and marine resources of the community. Orleans is a participant in the Massachusetts Estuaries Program (MEP) for Pleasant Bay (along with Chatham and Harwich), Nauset Estuary, and the Town’s three Cape Cod Bay tributaries of Rock Harbor, Namskaket Creek, and Little Namskaket Creek. Both Pleasant Bay and Cape Cod Bay have been designated as Areas of Critical Environmental Concern (ACECs) by the Commonwealth of Massachusetts.

Since the late 1980s, the Town has been involved in an ongoing program to replace street drainage with proper stormwater management systems. Stormwater runoff is accepted as a significant source of pollutants to surface waters. Runoff may contain bacteria, viruses, sediment, metals, oils, and/or nitrates, which contaminate receiving waters and cause chemical and biological changes to the water ecosystems.

The Town has a Marine Water Quality Task Force, and a group of trained volunteers who monitor water quality at dozens of strategic locations across the town. Town Meeting has appropriated several hundred-thousand dollars to correct the worst of these drainage problems, and Town staff have utilized State and federal grants to augment the process. The major focus of treatment design is to be able to treat the "first flush", or dirtiest portion of stormwater runoff before it reaches the bays and ponds.

The major threat to this shellfish resource is pollution and potential overfishing. The former problem is derived from several sources, including stormwater runoff, wildlife and domestic animal wastes, and increased residential development. Periodic closures of shellfish beds owing to bacterial contamination have been common over the last decade. Areas that are permanently closed to shellfishing for water quality reasons include Namskaket Creek, Little Namskaket Creek, Rock Harbor, upper Pochet Inlet, and a small portion of Paw Wah Pond. Routine seasonal closure occurs in Nauset Harbor (Harmful Algal Blooms, not coliform), as well as small portions of Town Cove and Meetinghouse Pond near drainage outflows.
One problem not caused by human development is the expanded and shortened tidal range in Pleasant Bay and the Nauset Estuary. These changes are associated with the 1987 breach of Nauset Beach opposite Chatham Light as well as the migration of the Nauset spit to the north. This ever changing barrier beach system has caused changes in tidal ranges and hydrological conditions throughout Pleasant Bay and the Nauset Estuary. Water quality has been somewhat improved in Pleasant Bay, but the higher tides also increased storm erosion of coastal banks.

The 1987 breach also precipitated a flood of applications for bulkheads and retaining structures, such as rock revetments. More than a mile of engineered walls have been permitted along Pleasant Bay and Nauset Marsh since 1991. These walls may stabilize banks, but they also prevent natural sand replenishment of beach areas and preclude inland migration of salt marshes in response to sea level rise. As marsh and beach acreage dwindle, shellfish and finfish will have less potential habitat and nutrients.

The changes in the Orleans Town beach and the Nauset Inlet side of the barrier beach pose unique problems for the Town of Orleans. Nauset Beach, owned by the Town, is the Town’s most significant public beach. Its 1,000 car parking area provides significant capacity for residents and visitors alike. Despite having the largest capacity of any parking lot on the lower or outer Cape, it commonly fills up in the summer months. In recent years the Atlantic shoreline directly in front of the Nauset beach parking lot has significantly eroded. In many cases the level of erosion in this area has exceeded the shoreline average of 5’ a year. At this time there is approximately 250 feet of dune area between the parking lot and the ocean. Under the current erosion average of five feet per year, the waters edge could reach the parking lot in approximately 50 years. A new parking area further from the beach may be needed if the existing area is rendered unusable by erosion.
SECTION 5 - INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

A. Public & Private Conservation Lands

Open space lands are important to those who live, work or play in Orleans because they provide the benefits of pristine natural resources people cherish. Open space provides natural buffers between developed neighborhoods, adding to a sense of place on public as well as private lands. They protect vital drinking water, provide habitat for wildlife and plant life, and help to preserve the water quality of coastal estuaries and fresh water ponds. Natural open space areas allow for scenic vistas and provide places for recreation. Furthermore, they enhance the semi-rural seaside character of the Town.

Open space protection can come through a variety of methods such as acquisition, conservation restrictions, easements and regulations designed to preserve natural, cultural and historic resources. Though small in geographic area, the Town’s ecological, cultural and recreational blessings are great and we must be vigilant in preserving them.

Orleans currently has more than 2,700 acres of protected open space land that is owned and managed by a variety of public and private agencies, and by individuals. The primary open space providers in Orleans are the Town of Orleans and the Orleans Conservation Trust (OCT). Town-owned conservation and recreation lands make up roughly 20% of the Town’s total area totaling 1,477 acres. The Town of Orleans itself is responsible for acquiring and protecting 69% of all the open space in town. Town open space in Orleans is largely managed by the Conservation Commission in connection with the Town Parks and Beaches Department. A detailed matrix explaining the location, size, ownership, management agency, access, and current use of Town Open Space and Recreation Lands can be found in appendices as well as being displayed, by ownership, on the updated Town of Orleans Open Space Map.

OCT is the single largest private landholder in the community owning 427 acres of natural areas and protecting another 54 acres through conservation restrictions. In addition, there are 368 protected lands held by other agencies and land trusts in Orleans. A complete list of the OCT owned and managed parcels detailing location and size can be found in the appendices as well as on the map.

The table below displays the summary acreage of protected open space owned by the various agencies or trusts responsible for it protection. The corresponding Open Space Map (see open space map) displays the location of these parcels throughout town. A complete matrix of all open space parcels displayed on the map can also be found in the appendix. This matrix details property location, management agency, current use, condition, and degree of protection.
Table 2: Open Space Summary

<table>
<thead>
<tr>
<th>Open Space</th>
<th>Acres</th>
<th>% of Town</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Publicly Owned Open Space</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Town Owned outright</td>
<td>1725.0</td>
<td>19.2%</td>
</tr>
<tr>
<td>Town Conservation Restriction</td>
<td>63.8</td>
<td>0.7%</td>
</tr>
<tr>
<td>Federal</td>
<td>103.6</td>
<td>1.2%</td>
</tr>
<tr>
<td>State</td>
<td>1.2</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Privately Owned Open Space</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCT Owned outright</td>
<td>427.0</td>
<td>4.8%</td>
</tr>
<tr>
<td>OCT Conservation Restriction</td>
<td>53.6</td>
<td>0.6%</td>
</tr>
<tr>
<td>Other</td>
<td>368.2</td>
<td>4.1%</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>2742.4</strong></td>
<td><strong>30.6%</strong></td>
</tr>
</tbody>
</table>

Source: Town of Orleans Planning Department, 2004-2005

Orleans is fortunate to have a variety of beautiful beaches - over 800 acres of Atlantic Ocean frontage, a beach on Cape Cod Bay, and fresh water beaches at Pilgrim & Crystal Lakes. All are extensively used year-round by residents, summer residents and tourists. These areas provide the location for most recreational activities on public lands. The other major town recreation area is the Eldredge Park - Middle School - Elementary School complex, which contains a variety of playing fields, tennis courts, a playground and a band shell. These facilities are used by the schools.
2006 Conservation, Recreation and Open Space Plan

during the school year and by the Recreation Commission year-round. Cape Cod League baseball games, acknowledged as top-flight collegiate competition, are held at Eldredge Park as well.

In addition, there are 8 other parks in town with a total of 13.7 acres. The largest is 2.2 acres on Town Cove, site of the old Windmill which has been carefully restored by volunteers over the past years with funds raised by the Orleans Historical Society to provide an accurate replica of the windmills which dotted Orleans' shoreline through the 1800s. Window on the Cove Park provides a second window on Town Cove, primarily for passing motorists. In 1999, Town Meeting voters continued the acquisition process by purchasing a 2.4 acre parcel that has frontage on Town Cove. Other small parks, maintained by the Parks Department, are spots of historic interest - cemeteries and war memorials adding to the aesthetics of the town.

Access to the town's salt water bodies is provided by 26 town landings under the jurisdiction of the Selectmen and administration of the Harbormaster. Issues associated with town landings include maintenance, overuse, parking needs, and general management.

It should be noted that the Town engaged in a relatively large preservation program throughout the late 1980s, purchasing more than $10 million worth of open space lands. The 1990s were also busy with approval of the Land Bank by Orleans voters in November 1998. Since then, Town Meeting has approved 9 recommendations for the acquisition of 15 parcels of approximately 111 acres. An additional two parcels of almost 14 acres were also protected due to these purchases, resulting in approximately 125 acres preserved by the Land Bank. The total land cost of $6,923,952 was offset by State matching funds in the first three years, two Self-Help grants, DEM and County grants, reducing the total net capital cost of land to $6,116,316.

The Land Bank provided the Open Space Committee with the credibility to pursue major land preservation priorities set by the first Open Space Committee in 1986. This was due to the Land Bank's defined 20 year surtax and the resultant ability to bond large acquisitions. These will not be available under the CPA. There is conservatively $300,000 of bonding authority remaining in the Land Bank account. The Committee's current land protection priorities exceed this remaining balance. These priorities may become significant opportunities for any future CPA funds.

In May of 2005 the Town of Orleans adopted the Community Preservation Act. The Commonwealth of Massachusetts provides matching funds for CPA communities for at least 2005 through 2009. For the first two years of the program funds are anticipated to be matched by 100% of the CPA levy. In the future, Orleans will rely on the CPA as the source for future Open Space protection funding.

The Orleans Conservation Trust supplements the town's efforts to acquire open space and to protect its natural resources. The OCT is a private non-profit organization formed in 1970. Since the 1994 CROS update, the organization has acquired 75 acres of valuable upland and marsh.

Pochet Island Trust, the only other land trust operating in Orleans, owns Pochet, Sampson and Hog Islands. Total area protected is 377 acres, of which 231 acres are upland and 146 marsh. The islands are within the borders of the Cape Cod National Seashore. The Department of the Interior holds permanent conservation restrictions on all three islands.

Privately held commercial recreation lands have been in decline. The Town has a bowling center, skating rink, and several boat yards. Summer camps, which were once popular here, have given
way to residential subdivision on the land upon which they once stood. Private sailing programs are still provided by the Orleans Yacht Club on Town Cove and the Namequoit Sailing Association at Frost Fish Cove throughout the summer.

By and large, the Town's parks, beaches and facilities are well maintained, in excellent condition and completely accessible for use by the general public. Progress has been made since the last CROS update to improve handicapped access at all public parks and beaches. The grounds of Sea Call Farm have been refurbished into community gardens and the house is being restored with assistance from the non-profit Friends of Sea Call Farm, with handicapped parking for scenic viewing available.

Management plans for public open space parcels have been developed under the supervision of the Conservation Commission with broad public input on the best public use of facilities and protection of natural resources. Management plans are on file for Kent’s Point, Baker’s Pond, Paw Wah Point, and the John Kenrick Woods. These efforts have been aided by private groups, often composed of citizens who reside near a particular open space area and want to have input into its use. The Orleans Comprehensive Plan recommends developing and maintaining management plans for all significant open space parcels.

B. Recreation Department Programs and Bike Ways

The Recreation Department offers a wide range of programs year-round. These programs have been expanded in recent years and will continue to grow to meet the needs of the town's residents. The Recreation Department currently offers the following programs.
Table 3: Orleans Recreation Programs

<table>
<thead>
<tr>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Winter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nauset Recreational Basketball</td>
<td>Youth Center</td>
<td>Nauset Recreational Soccer</td>
<td>Nauset Recreational Basketball</td>
</tr>
<tr>
<td>Lower Cape Recreational Baseball</td>
<td>Jr. Babe Ruth’s Baseball</td>
<td>Nauset Field Hockey</td>
<td>Youth Center</td>
</tr>
<tr>
<td>Lower Cape Girls Softball</td>
<td>Adult Softball Leagues</td>
<td>Adult Basketball</td>
<td>Preschool Movement</td>
</tr>
<tr>
<td>Pony League Baseball</td>
<td>Adult Tennis Clinics</td>
<td>Senior Tennis</td>
<td>Indian Summer Tennis Tournament</td>
</tr>
<tr>
<td>Adult Softball Leagues</td>
<td>Senior Tennis</td>
<td>Cape Cod Amateur Soccer</td>
<td>Nauset Recreational Basketball</td>
</tr>
<tr>
<td>Adult Tennis Clinics</td>
<td>Arts and Crafts</td>
<td>Public Skating</td>
<td></td>
</tr>
<tr>
<td>Cape Cod Amateur Soccer</td>
<td>Senior Babe Ruth Baseball</td>
<td>Preschool Movement</td>
<td></td>
</tr>
<tr>
<td>Youth Center</td>
<td>Youth Instructional Swim Lessons</td>
<td>Saturday Youth Basketball</td>
<td></td>
</tr>
<tr>
<td>Senior Babe Ruth Baseball</td>
<td>Boating Safety</td>
<td>Senior Tenant</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts and Crafts Programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Youth Instructional Tennis Lessons</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower Cape Open Tennis Tournament</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Two modes of transportation that reduce the number of cars on the roads and lessen the impact on infrastructure and the environment are walking and bicycling. Much of the downtown has sidewalks for pedestrians. However, a significant portion of the area is in need of sidewalk improvements. There are no bike lanes other than the Cape Cod Rail Trail.

There is a need to link outlying public parking areas with the downtown village center and to establish walking paths between abutting business properties. It is important to link the three primary villages (E. Orleans, S. Orleans, and the Village Center) for bicycle and pedestrian access. The Cape Cod Rail Trail is part of a designated bicycle path which runs along the former railroad right-of-way and passes through the center of town. A bicycle bridge, and rail trail extension, over Route 6 was completed in 2002 and improved the trail. Because of its location, this bikeway has the potential to connect to several other areas. Most notably is the possibility of connections to South Orleans by constructing an additional bike path through the public watershed. The Orleans Bikeways Committee continues to examine the feasibility and location of such an extension and funds for design may be needed for this to go forward.

The town’s residents have expressed a desire for additional hiking trails on conservation land and the addition of sidewalks along major streets. Based on the public desire for additional bicycle paths, sidewalks and pedestrian walkways, it is recommended that the appropriate Town departments and committees evaluate the feasibility of expanding pedestrian and bicycle facilities.
C. Inventory of Open Space and Recreation Lands

There are a variety of recreational facilities and areas available to residents throughout the town. Most areas are water dependent; they are either beaches or landings, or they otherwise derive their value and attractiveness throughout the water views they offer. Athletic field space is concentrated in the center of town adjacent to the Nauset Regional Middle School, except for a little league field at Town Hall. The following Map shows major recreational areas in Orleans as well as the Bike trail and Bike routes in town.
SECTION 6. COMMUNITY GOALS

A. Description of Process

In order to find out what the people of Orleans want with respect to conservation, recreation and open space in their town, the Town of Orleans conducted a survey which asked residents how they felt about acquiring additional open space and what improvements they felt were needed at open space and recreation areas. Questions were asked about what residents liked and disliked most about the town to get information about how residents perceive Orleans now and what the focus of long range planning should be.

The survey was developed by the Open Space Committee, with input from the Conservation Commission, Local Comprehensive Plan Committee, Recreation, and Conservation Departments. In May 1999, it was sent to every year-round household in the town. Additional copies were made available for extra household members and for seasonal residents who wished to participate. A total of 3,048 surveys were sent out. 655 were returned and analyzed for this plan. The response rate of 22% is considered very high for such a survey.

In addition to answering multiple choice questions, many respondents elaborated on their answers, and sometimes articulated concerns not covered by the questionnaire. There were distinct similarities among characteristics residents mentioned liking and disliking most about Orleans, and responses were grouped and tabulated accordingly. The survey and the results can be found in the appendix.

The 22% response rate and 664 responses was an improvement over the last survey’s return of 269 following a newspaper circulation distribution of 4,000 homes. The 1999 survey corroborated the Orleans’ citizens strong desire to protect open space: wellfields, access to ocean and fresh water ponds, wetlands and natural habitat. In fact, the 1999 Survey showed stronger support for land protection and preservation than the 1992 Survey, or a Town wide Survey in 1994 for defining issues at the initiation of the Local Comprehensive Planning Process.

The Survey was delivered to Orleans homes the week of May 24. Residents were asked to return the completed survey by June 11 to the Clerk’s Office or the Planning Department. Additional copies were available at each location for citizens not receiving, or for additional family members. Only 44 additional surveys were received. The June 11 cut off date was extended to June 25 to complete the following tabulation. An additional 9 surveys were received after June 25. The results were tabulated by members of the Open Space Committee and completed July 2.

A public presentation of the survey results was made on August 3, 1999 at Snow Library. Residents expressed general agreement with the findings, and mentioned the need to vigorously pursue open space preservation.

In support of the 1999 effort a 2005 Planning Survey was sent out to every head of household in Orleans. This survey was done as part of the 2006 Orleans Comprehensive Plan update but asked many questions regarding open space and recreation as well as issues pertaining to the protection of the environment (see survey in appendix). Many residents still feel strongly about the desire to
protect open space; the public water supply, coastal water quality, and wetlands and natural habitat areas.

**B. Statement of Conservation, Open Space and Recreation Vision**

The crossroads quality unique to Orleans extends to its citizenry's health and enjoyment. Very few communities have the mix of natural resources, open uplands, and support facilities the exist in Orleans. Orleans residents have consistently demonstrated vigilance in protecting natural resources, and a willingness to pay the costs of preservation of maintenance.

Orleans is a place where residents can still drink pure water, breathe clean sea air, walk dense forests, open fields and long beaches, catch and eat healthy fish and fowl, savor remnants of their colonial history, and meet friends through recreation programs and events. Other towns offer many of these necessities and amenities but not all of them in such profusion and proximity. Orleans is a small town, both in area and in character, but its natural and cultural offerings are diverse and interesting.

The CROS vision is that each Orleans resident and visitor will catch a bit of the community vision to be aware of the need to protect and enhance natural resources for the enjoyment of current and future residents.
SECTION 7. ANALYSIS OF NEEDS

A. Introduction

In recognition of Orleans' exceptional natural resources, the Town has been fairly progressive in its approach to preserving important open spaces. A major land acquisition effort in the late 1980s secured several large parcels, and set forth a program for strategically targeting resource protection based on certain criteria. This effort slowed considerably in the early 1990's due to the downturn in the economy. The revived strength in the economy in the late 1990's, and the resulting increased rate of development on Cape Cod has sparked renewed interest in open space preservation. The creation of the Cape Cod Land Bank in 1998 provided a new financial tool for municipalities to purchase and protect land from development. (See Survey Results in the Appendix)

The Open Space Committee worked closely with the Board of Selectmen to develop and refine a set of criteria by which potential purchases can be evaluated. The list consists of seven priorities. Properties which fulfill more than one of the evaluation criteria are considered more valuable than properties which meet only one criterion. The list is as follows:

1. Wellfields, aquifers, recharge areas for water
   (Baker’s Pond-Brewster, Eastern slope of watershed, Well #7)
2. Coastal Lands (ocean/ pond frontage, beaches, dunes)
3. Natural or Wildlife Preserves
4. Scenic Vistas
5. Trails (walking & biking)
6. Recreational Potential (passive or active)
7. Wetlands
8. Forest Lands
9. Agricultural Lands

In addition to outright land purchase, innovative approaches to preserving open space have also been applied by the Town of Orleans and private entities, such as the Orleans Conservation Trust. These methods include:

Fee acquisition (conveying full title to land)

- Donation: immediate or installment: to Town or Orleans Conservation Trust
- Purchase: friendly sale, eminent domain, bargain sale, installment sale
- Bequest
- Tax title transfer

Less-than fee protection (conveying partial rights to property)

- Access easement
- Conservation restrictions
• Lease
• Remainder interest/reserved life estate
• Option/rights of first refusal
• Tax-deferral programs: MGL 61, 61A, 61B
• Differential assessment program: Special Act 797 of 1979

To determine the acquisition technique best suited to a particular parcel targeted for protection, the following circumstances should be evaluated:

A. Needs of the community:
   • Is the parcel desirable for access and active use, or resource protection and passive use?
   • Are acquisition funds available (cash donations, town appropriation, outside grants?)
   • Is the parcel needed immediately or in the future?

B. Needs of the landowner:
   • Are income tax or property tax advantages, or cash most important for landowner's financial situation?
   • Is continued privacy an issue?
   • Is the landowner sympathetic to public protection?
   • Size and value of parcel
   • Is the parcel large enough to protect what needs protection or serve as a linkage?
   • Is the entire parcel needed or just a portion?

C. Development pressures:
   • Is the parcel likely to be available later if not acquired now?
   • Is the real estate market likely to push prices beyond reach or will the market decline in the foreseeable future?
   • Can the town relieve land development pressure through advantageous tax policy?

D. Maintenance:
   • Can the community manage the property better than current landowner, given expected levels and types of use?
   • Does the town have the money and expertise to manage the parcel?

In general, parcels proposed for active use, such as parks, swimming beaches or boating facilities, should be publicly owned for liability reasons. Resource protection uses may not require public ownership.
Parcels with Strategic Potential for Open Space

This map is illustrative and intended for planning purposes only.
Map created by the Town of Oceans Planning Department.
B. Catalogue of Methods of Open Space Preservation

1. Fee Acquisition

a. Donation (outright gift of land)

The landowner gives the entire interest in a property (fee simple title) to the town or charitable conservation organization, such as the Orleans Conservation Trust. The donor is relieved of future property taxes because ownership is relinquished. The donor may receive income tax deductions amounting to the appraised fair market value of the land. There are no capital gains, brokers' fees, or gift taxes for this gift of property.

The landowner may impose use restrictions on the deed, such as prohibiting motor vehicles, though these limitations may reduce the value of the gift. In order to maximize income tax benefits, the landowner may choose to donate parts of the property in different years or donate undivided interests in the entire property over successive years.

Land donations are the easiest, quickest, and least costly land acquisition methods for the receiving entity. A title exam and hazardous waste survey should be conducted prior to conveyance. For donations to the a municipality warrant articles and deeds specifying conservation use should read, "to be managed under the authority of M.G.L. Chapter 40, section 8C," to ensure the land cannot be devoted to other municipal use. Acceptance of Land donations are subject to Town Meeting approval, or Selectmen approval if accepted by the Conservation Commission. Gifts of land to the Orleans Conservation Trust and other private entities do not need municipal approval.

b. Purchase

The Town or a land trust may choose to purchase the fee simple title to a property, provided that funding is available. The length of time necessary to complete the transaction depends on negotiations, title research, appraisals and Town Meeting scheduling. Town Meeting must approve the purchase by a two-thirds majority and, if bonds are issued, a simple majority of a town-wide election is needed to exempt the bonds from the tax levy limit (Proposition 2 1/2).

The Town also has the right to take a property for public purposes by eminent domain. Compensation in such cases is based a current appraisal. Landowners that feel aggrieved may sue for additional damage awards, as was the case with the town's taking of the Bakers Pond property. Where negotiations for purchase of land critical to a public purpose are unsuccessful, eminent domain proceedings may be the only option.

Land purchases can also be structured in installments or at bargain prices to satisfy a landowner's tax needs. A bargain sale is one at a price below fair market value by at least 20 per cent. The difference between appraised value and the sale price should qualify as a tax-deductible gift, which can offset the landowner's capital gains tax on the sale.

c. Bequests (Gifts by Devise)

Property can be given for public use after the landowner's death if his or her will specifies such a disposition. This technique allows the landowner full use and enjoyment of the land during his or her lifetime, while removing the asset from estate tax obligations at the time of death. There are no
income tax or property tax savings using this approach and the community gets no immediate use of the property. There is also no assurance that the landowner's will won't be altered before decease.

**d. Tax Title Transfers**

Tax title properties are parcels acquired by a municipality through foreclosure owing to non-payment of property taxes (M.G.L.c 60). Today, land values are generally high enough to dissuade owners from risking the loss of their land through tax default. In the past, however, many properties were taken through foreclosure.

Once acquired by the community, tax title lands are general purpose municipal lands, usually under the control of the Selectmen. They can be kept, sold by Town Meeting, or transferred to another town agency for a specific use. The Conservation Commission, for example, could request wetlands and parcels with special resource value. Barnstable and Wellfleet have regularly transferred these types of parcels to their Conservation Commissions.

2. Less-than-Fee Acquisition

**a. Access Easements**

As with easements for drainage, driveways, and utilities, access easements may also be constructed to link open space parcels or to create viewsheds. Unfortunately, landowners often fear the loss of privacy and liability issues associated with public use. If privacy loss results in a reduction in fair market value the town may lower the tax assessment on the affected parcel accordingly. Massachusetts General Law (c. 21, s. 17C) protects landowners from liability if they allow public access without charging admission. Access easements granted to the Town must be approved by the Selectmen.

**b. Conservation Restrictions (M.G.L. 184 s. 31-33)**

Conservation restrictions are voluntary, yet binding legal agreements between a landowner and the town or conservation organization, such as the Orleans Conservation Trust. The landowner is offered powerful incentives, through estate tax and federal income tax deductions and property tax relief, to keep the parcels in an undeveloped state. Since authorized in 1969, over 75 acres in Orleans (and 20,000 acres statewide) have been preserved through this technique. The owner keeps control over the land, while the holder of the restriction promises to enforce the terms of protection. The state Secretary of Environmental Affairs and the Selectmen must approve each restriction based on the land's environmental significance or other public benefit.

In 1990 the Orleans Board of Selectmen and Board of Assessors adopted a set of policies, based on work prepared by the town Open Space Committee, which encourage the use of restrictions as a means of preserving natural areas without the town having to purchase them. Perpetual or temporary restrictions will be considered. Property valuation will be reduced by as much as 90% for lands under permanent restriction.

In the appendices all current conservation restrictions in effect in Orleans are listed. Several of the agreements expire early next century; those landowners should be contacted and urged to renew the restriction before expiration. Note that in addition to the conservation restrictions held by the
Orleans Conservation Trust, the National Park Service also holds conservation restrictions over 337 acres of land owned by the Pochet Island Trust.

c. Lease
The Town could lease private land for open space needs, such as for a community garden. Leases are effective in their flexibility and "trial-run" aspects. A landowner who is reassured by the community's responsible management of the leased land may be more willing later to cooperate on a more permanent arrangement, such as a donation in fee or conservation restriction.

Leases are recorded in the Registry of Deeds and remain in force until their expiration date, even if the land's title is conveyed. Land leased for public use is typically relieved of property tax obligation. No income or estate tax deduction can be claimed due to the temporary nature of the lease.

d. Remaider Interest/Reserved Life Estate
A landowner can give or sell land to a town while retaining the right to live on or use the property for the rest of his or her life. The landowner keeps "a reserved life estate," while transferring the remainder interest to the town. The landowner receives a charitable deduction for the value of the land minus the value of the life estate (based on IRS actuarial tables) and minus any depreciation. The landowner typically must still pay property taxes and maintenance costs. Reserved life estates are used by elderly landowners who still need their home, but not their land. Benefits to the community include immediate access to the property and knowledge that, eventually, full control will result. The 27-acre Kent's Point parcel near Lonnie's Pond was acquired by the Town in 1988 using.

e. Options/Rights of First Refusal
An option is a right, but not an obligation, to purchase a property at an agreed upon price at a specific time. Options allow a town or land trust the time needed to raise funds for a parcel it knows it wants to acquire. Options are particularly useful in times of development pressure and a strong real estate market. They lock in a price and take the land off the market, and allow a town or land trust the time needed to raise funds. The town pays a nominal price for, and records the option. Landowners derive no tax incentives from this technique, but many landowners would prefer to sell their property for conservation than for development.

Rights of first refusal similarly can buy time for the town to assemble acquisition funds, but are less certain than options. These agreements set neither a purchase price nor an execution date. The town cannot determine when or if the owner will decide to sell the land, but it gives the public the right to determine the land's fate when that time comes. No tax incentives accrue to the landowner from these agreements; civic cooperation may be the only motivation.

3. Property Tax Relief

a. Current Assessment Programs
Farms, forest and private recreation lands can receive preferential tax treatment under the current use assessment programs (M.G.L. c.61, 61A, 61B.) These programs enable local assessors to value open lands in their current state rather than at their "highest and best use," which in Orleans would
generally be residential or commercial use. It is similar to a conservation restriction program, in that it is employed strictly at the owner's request. This option results in no income tax or estate tax deductions. The property owner must file an annual application, and the Town has an automatic right of first refusal. An advantage of this method is that eligibility criteria and property tax reductions are simple and standard throughout the state:

- c.61 Ten acres of woodland with a state-approved forest management plan; 95% tax reduction plus stumpage fee,
- c.61A Five acres in agricultural production grossing $500 annually; reduction based on crop type,
- c.61B Five acres used for public recreation or resource protection; 75% reduction.

A disadvantage is that property owners can withdraw from the program at any time, with penalties. Appendix E lists Orleans landowners currently enrolled in Chapter 61, 61A and 61B programs, totaling 199 acres.

b. Differential Assessment Programs
Private retention of open land could be stimulated by Chapter 797 of the Special Acts of 1979, which provides the Selectmen with an option to tax open land at a rate up to 15 percent less than residentially-developed land. The premise is that developed land requires more municipal services and should generate more taxes than open land. The town's total tax revenue remains the same; more of the burden is simply shifted onto developed properties. The advantage to this program is that it applies indiscriminately throughout the town; everyone gets a tax break for keeping land undeveloped whether they want it or not. The drawback is that the open space rate reduction of 15 percent is much smaller than the discount offered by other techniques, such as conservation restrictions.
4. Private Conservation Organizations

Land conservation trusts and watershed associations have played major roles in shaping open space protection in Orleans. As private organizations, they can work separately from town government, while pursuing shared goals. As charitable groups recognized by the IRS, they can offer similar tax advantages as the town to a landowner for gifts of land. Land trusts, such as the Orleans Conservation Trust, are directly involved in acquiring and managing land and conservation restrictions for natural, recreational, scenic or historical qualities. Watershed associations, such as the Friends of Pleasant Bay and Friends of Meetinghouse Pond, are primarily engaged in advocating wise public use, protection of water quality, and research and public education about a particular water resource, but do not actually own land. Both types of groups are supported by public memberships and directed by a board of volunteer citizens.

These organizations do offer some advantages in protection of open space. First, they can work quietly and confidentially with landowners to forge relationships that may result in open space protection, such as a land donation. Second, these groups are an attractive alternative for landowners skeptical about working with governmental bodies. Non-profits are not susceptible to the same type of political pressure to which a town agency may be subjected. Finally, these groups can be instrumental in performing much of the pre-acquisition work needed for a town to purchase land, including surveys, title exams, appraisals and options.

Founded in 1970, the Orleans Conservation Trust (OCT) is the second oldest land trust on Cape Cod and the largest private landowner in Orleans. Over the years, the Trust has been effective in preserving significant conservation properties, primarily through donations. In 1992, the Trust, protector of over 555 acres in town through ownership or conservation restriction, concluded its first purchase of property, buying Little Sipson's Island in Pleasant Bay with $150,000 in donations from citizens.

The Friends of Pleasant Bay has filled important research, education and advocacy roles since its founding in 1985. The four-town volunteer group worked to secure the designation of the Bay as a state Area of Critical Environmental Concern in 1987, conducted archeological studies in 1986, completed an inter-town comparative zoning study and a landscape study in 1989. In 1991, the Friends funded the first management plan for a town-owned conservation parcel, the 10-acre Paw Wah Point preserve. The group was also involved in the development of management plans for the Pleasant Bay ACEC and for the Kent's Point Conservation Area.

Both the Friends and the OCT are members of The Compact of Cape Cod Conservation Trusts, which provides them with technical assistance and professional expertise on matters relating to planning, land acquisition and management, and non-profit administration, in addition to linking them to their counterparts across Barnstable County. The Friends of Meetinghouse Pond, formed in 1984, has aided in the town's identification and correction of water quality problems.

C. SCORP Compliance

The Town of Orleans, in preparing and evaluating open space and recreation acquisition options, will endeavor to comply with the provisions of the Statewide Comprehensive Outdoor Recreation Plan. The plan focuses on enhancing opportunities for outdoor activities that may take place on recreation and open space lands. One of its main tenets is that enjoyable outdoor activities lean heavily on the quality of the outdoor environment. This plan attempts to set a framework for
evaluation of potential acquisition so that progress in Orleans complements the desire for areas where one can find clean air, abundant wildlife, and a general respite from the dizzying pace of modern society. Many of the evaluation criteria adopted by the Orleans Open Space Committee seek to establish areas for passive recreation that are consistent with the goals of the SCORP.

Orleans is committed to providing open space and outdoor recreation opportunities to people with disabilities. The Town has limited resources and cannot make all public lands fully accessible to those with mobility or other limitations. The Town has chosen as an alternative to work diligently to ensure accessibility to a variety of open space types, and has made very good progress in this area since the 1999 CROS was adopted.

D. Summary of Needs

Orleans is a small town, with great natural beauty. The town's wonderful views and environment of native plants and wildlife are enjoyed by residents and visitors alike. Many of its natural areas are also important recreational resources. The open space, recreational amenities, and other aspects of protected lands and waters are important to the economic vitality of the community. The purpose of this plan is to identify means by which to protect valuable resources which are vital to the town.

1. CROS Community Survey and 2005 Planning Survey

As discussed in the Introduction to this plan, an opinion survey conducted in 1999 solicited residents’ views on Open Space. Over 3,000 surveys were mailed out and it had a response rate of 22%. A copy of the survey form with complete results is included in Appendix A.

Based on the results of the survey, the qualities residents like most about Orleans are the small town atmosphere and availability of beaches & boating areas. Residents describe their town as a community that encourages preservation of open space. The most important areas cited for protection were open spaces to meet the Town’s water and conservation needs. This is a consistent opinion of Orleans residents, who have always placed protection of drinking water as the highest priority. Other aspects of the town which were described in positive terms included natural beauty and convenience for shopping.

The 1999 Survey showed that a very high percentage of respondents favored Town-supported land acquisition (84%, the highest total of any question). Nearly all residents favored limiting residential growth, and few encouraged higher density in the Village Center.

Updating the 1999 effort the 2005 Planning Survey confirmed that the opinions and goals of the townspeople have remained almost the same. In August 2005, a copy of the survey went out to every head of household in the Town (5,154 mailed). A total of 1,237 were received back resulting in a favorable response rate of 24%. As stated the 2005 survey had very similar results on questions concerning growth control, natural resource protection, and open space preservation.

Of the respondents to the 2005 survey, 72% agreed or strongly agreed to setting a cap on Orleans’ buildout population or possibly giving up development rights in order to control growth. An alarming 80% of respondents agreed or strongly agreed to further increasing restrictions on land development to protect coastal waters, even if it limited your ability to expand their home. In addition, 60% agreed or strongly agreed to protect more open space even when told it would require additional taxes to purchase. In summary the demand for services remains high in Orleans.
as well as the demand for a healthy environment, clean coastal waters, and an overall growth management strategy.

2. National Park and Recreation Standards

Orleans currently meets many of the national recreation standards for its year-round resident population. For the seasonal population of 18,000 the Town meets the standards for swimming beaches, football and soccer fields. The ice arena is closed for the summer.

As a rapidly growing town, Orleans must ensure that its recreational facilities expand to keep pace with demand. Growing leisure time and widespread interest in physical fitness demand fiscal commitment to build and maintain adequate facilities.

E. Management Needs

Most survey respondents, both from 1999 and 2005, believe the town is taking good care of most of its open space facilities. Rather than approach management of town open space in an ad hoc manner, comprehensive management plans for many areas have been developed. The plans, developed by the Conservation Commission, involve public processes and best management practices. The resulting plans include handicapped-access, resting benches, picnic tables, scenic overlooks, parking and beach access. Management plans have been produced for Paw Wah Pond, Kent's Point, John Kenrick woods and other town-owned open space.

Accessibility for the disabled is an important consideration when developing and managing facilities. The Town has many examples of how this can be done in an economically responsible and environmentally sensitive manner. Kent’s Point was developed with handicapped considerations in mind, making it accessible to ambulatory citizens who may tire easily, by providing benches every 250 feet, rather than paving a lengthy trail for wheelchairs. The Malcolm Dickinson Memorial Conservation and Recreation Area at Crystal Lake was developed to make that popular swimming pond wheelchair accessible by providing a ramp to the water's edge. At Bakers Pond, however, the very high and steep bank to the shore makes this concept unfeasible. A seasonal wooden ramp to cross the beach at Nauset Town Beach for wheelchair swimmers is more practical than at Skaket Beach, with its extreme tide range.

As part of good management practice, recreational opportunities at Town-owned facilities should be publicized. Street signs directing motorists to Kent's Point and Paw Wah Pond have been installed. The Cape Cod Commission Regional Policy Plan supports the promotion of environmental tourism on the Cape as a positive form of economic development. The town should continue to find creative ways to promote its holdings.

Other management needs involve long-term vigilance, including open space retention. Although state and federal restrictions limit the uses of some town-owned parcels (Sea Call, Kent's Point, the Poor Property, Paw Wah Pond, Bakers Pond and the Dickinson Area), depending on the funding source and method of purchase, some open space properties could be converted to another municipal use. Attempts have also been made by a minority of concerned citizens to sell some Town-owned open space as means of revenue generation for the Town. How the town manages its open space may influence decisions on the sale of properties, as well as future purchases.

The Town should also consider opportunities to convert existing developed parcels into recreation and open space land where appropriate. The Orleans Conservation Trust has led the way in this
regard. In 1989 OCT was given a 1.26 acre lot on Champlain Road with the stipulation that the
dilapidated house on the parcel be demolished and a field restored. Working in partnership with
the town, which waived expensive dump fees, OCT accomplished the task in 1990. In 1992, OCT
faced the more daunting task of raising $150,000 to purchase Little Sipson Island to prevent the old
cabin there (swept away in the October 1991 storm) from being replaced by a modern structure.

F. Conclusion

In addition to continuing its long-standing program of purchasing land, the town must forge
creative partnerships with public and private agencies or groups to complete its mission of
protection, management, retention and restoration of open space and recreation lands.
SECTION 8 - GOALS AND OBJECTIVES AND ACTIONS

The results of the CROS Survey and interviews with town department heads and committee chairmen were key sources for developing the Goals and Objectives of this plan, and the criteria by which properties are judged suitable for acquisition. The charts that follow indicate actions proposed for implementation and the responsible party. It includes goals and the policies of the plan, and the actions to be carried out by various town committees and departments.

<table>
<thead>
<tr>
<th>Goals, Policies &amp; Actions</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSERVATION GOAL: PROTECT AND ENHANCE ORLEANS’ FRAGILE ENVIRONMENTAL RESOURCES</td>
<td></td>
</tr>
<tr>
<td>A. PROTECT ORLEANS’ COASTAL/SALTWATER RESOURCES: Preserve coastal water quality that will enable fishing, shellfishing, swimming and boating to continue for residents to enjoy and as a mainstay of the town’s tourist economy and support indigenous industries to commercial fishing and shellfishing:</td>
<td></td>
</tr>
<tr>
<td>1. Identify, locate and mitigate existing sources of stormwater pollution</td>
<td>WQTF</td>
</tr>
<tr>
<td>a. Reduce impact of nitrates from septic systems on coastal water quality</td>
<td>BOH</td>
</tr>
<tr>
<td>1) Use reports of frequent pumping generated by the septic plant to alert Health Department of private system failures.</td>
<td>BOH</td>
</tr>
<tr>
<td>2) Evaluate feasibility of new regulation to require upgrades at sale of property.</td>
<td>BOH</td>
</tr>
<tr>
<td>3) Control nitrate loading of saltwater bodies by zoning similar to that in the watershed with stricter health board regulations, consider adopting nitrogen sensitive area designations for areas with impacted water bodies.</td>
<td>BOH</td>
</tr>
<tr>
<td>4) Study use of septic systems with de-nitrification components.</td>
<td>BOH</td>
</tr>
<tr>
<td>b. Consider development of local or regional pump-out facilities to handle boat waste in the Rock Harbor area.</td>
<td></td>
</tr>
<tr>
<td>1) Study the need and feasibility of a mobile or stationary pump-out station for Pleasant Bay.</td>
<td>Hrbr Mast</td>
</tr>
<tr>
<td>2. Control, to as great an extent possible, the effect of nutrient- and contaminant-bearing road runoff on coastal water quality.</td>
<td>WQTF</td>
</tr>
<tr>
<td>a. Provide adequate drainage for roads and parking areas, which avoids negative impacts on wetlands, surface water bodies or groundwater.</td>
<td>HwyDept</td>
</tr>
<tr>
<td>1) Adopt amendments to zoning bylaws and subdivision rules and regulations requiring use of natural drainage systems such as swales and retention ponds.</td>
<td>PB</td>
</tr>
<tr>
<td>b. Mitigate point sources of contamination from direct discharge of runoff into coastal waters.</td>
<td>HwyDept</td>
</tr>
<tr>
<td>a. Continue to ensure no net loss of wetlands on any particular property.</td>
<td>Con.Com.</td>
</tr>
</tbody>
</table>
### 4. Continue planning to promote economic, aesthetic and environmental quality of town waterways and beaches.

| a. Support recommendations of the 1991 Town Cove Park Study to heighten awareness of resource and provide stronger backing for protective regulations. | Planning Dept. |
| b. Work with the Towns of the Pleasant Bay Alliance to coordinate resource protection in the watershed. | Planning Dept. |

### B. PROTECT THE TOWN’S FRESHWATER RESOURCES: Preserve the quality of groundwater, ponds and fresh water wetlands which provide drinking water, recreation and wildlife habitat:

| 1. Continue to protect public supply wells from contamination. Limit nitrate loading to expected safe levels in the zones of contribution to public wells and watershed to surface water bodies. | Water Dept. |
| a. Prevent contamination of groundwater by nitrates and other hazardous substances. For better protection of groundwater from possible spills, investigate the feasibility of creating a regional program to regulate the handling and storage of hazardous materials, inventory hazardous waste generators, and develop and enforce regulatory controls on storage and use of hazardous waste. | BOH |
| b. Develop programs to educate public, particularly owners of waterfront properties, on dangers of over use of fertilizers, failing septic systems, use of particular soaps, etc. | Cons. Com |
| c. Inventory and assess condition of all underground fuel storage tanks. Begin a program of removal of all fuel storage tanks. | BOH |

| 2. Dispose of septic waste without threatening groundwater resources. | BOH |
| a. Monitor fresh water bodies for nutrients such as phosphorus. | WQTF |
| b. Monitor nitrate levels of groundwater in area of the Tri Town septage treatment facility | Tri-town Com. |


### C. PRESERVE SENSITIVE LAND-BASED RESOURCES: Protect and preserve the value of lands for wildlife habitat, watersheds to wetlands, protection of groundwater, woodlands and forests, archaeological resources, and other historic resources:

| 1. Protect rare and endangered wildlife species. | Cons. Com |
| a. Identify rare and endangered wildlife species habitat in areas proposed for subdivision and other new building and protect to the greatest extent possible. | Cons. Com |

| 2. Preserve other green space for wildlife habitat. | PB |
| a. Encourage cluster subdivisions, buffers around subdivisions, and green strips bordering commercial areas to provide some habitat where possible. | PB |
| b. Require buffers of natural vegetation between resource areas such as wetlands, coastal banks, ponds, etc., and residences. | Con.Com. |
| c. Encourage maintenance of land, which is open field or meadow, a disappearing wildlife habitat and aesthetic resource. | Cons. Com |
### D. ENCOURAGE CONTINUATION OF SELF-SUSTAINING, RENEWABLE RESOURCES: Retain and, where environmentally appropriate, expand opportunities for renewable natural resource utilization, such as agriculture, aquaculture and silviculture:

1. Continue a shellfish resource enhancement program, and work to restore other marine resources, such as herring runs.  
   **Hrbr Mast**

2. Continue to promote community gardens at Sea Call Farm and the Infirmary Lot (Tonset Road), based on successful past experience.  
   **Con.Com.**

3. Preserve town tree plantings through professional program maintenance. Add new plantings as appropriate.  
   **Tree Warden**

4. Encourage use of the 61-A conservation restriction to foster local agriculture.  
   **Cons. Com**

### E. MITIGATE NATURAL HAZARDS OF STORM FLOODING AND SEA LEVEL RISES: Promote sound land use principles to prevent acute storm and chronic sea level rise from causing undue threats to public safety and natural resources:

1. Discourage further construction in flood prone or storm vulnerable areas by acquisition or other preservation techniques, state and local wetland regulations, zoning or other available tools.  
   **Planning Dept.**

2. Require greater setback from coastal banks for a new construction.  
   **Con.Com.**

3. Enforce flood district zoning and state building code requirements for construction in flood prone areas.  
   **Bldg.Com.**

4. Evaluate when, how and where coastal erosion can be controlled without adversely affecting marine ecology.  
   **Con.Com.**

### F. MANAGE TOWN’S OPEN SPACE PROPERTIES TO PROTECT NATURAL RESOURCES WHILE ENCOURAGING APPROPRIATE PUBLIC USE:

1. Develop and implement management plans, based on needs for public use and environmental assessments, for town-owned parcels committed to open space, conservation and recreation.  
   **Con.Com.**

2. Consider need to hire additional Parks Department personnel to assist with maintenance of town open space, conservation and recreation areas. Prepare operating budget request with analysis from Park Superintendent for Town Meeting.  
   **Town Admin.**

3. Install signs in prominent locations showing the direction of town beaches, landings and open space.  
   **Hwy Dept.**
G. INCREASE PUBLIC PHYSICAL AND VISUAL ACCESS TO WATER IN A MANNER COMPATIBLE WITH ENVIRONMENTAL PROTECTION OF THE RESOURCES:

1. Develop plan for locating docks in an environmentally appropriate manner, including potential use of community docks. Con.Com.
2. Develop regulations to control residential uses on the water surface, i.e., houseboats. Hrbr Mast.
3. Acquire additional land that meets this objective. OSC

H. COORDINATE PROTECTION OF RESOURCES WHICH CROSS TOWN BOUNDARIES: Cooperate with nearby jurisdictions to promote regional protection of groundwater, coastal and surface water quality and migratory wildlife and other natural resources which occur across town boundaries:

1. Encourage cooperation between local conservation commissions on regional administration of the State Wetlands Act in order to protect regional groundwater and wetlands. Con.Com.

OPEN SPACE GOAL: PRESERVE AND MANAGE UNSPOILED NATURAL AREAS TO PROTECT THE TOWN’S SPECIAL PLACES, MAINTAIN A HEALTHY NATURAL ENVIRONMENT, PROVIDE HABITAT FOR WILDLIFE, AND RETAIN ORLEANS’ RURAL CHARACTER

A. ACQUIRE OR PROTECT LAND SIGNIFICANT TO GROUNDWATER PROTECTION

1. Protect the town’s present and future public water supply and its quality by preservation of lands which:
   a. Abut or expand the town’s well fields or watershed areas OSC
   b. Are within the zones of contribution for one or more of the town’s public water supply wellfields.
   c. Are within the town’s Water resources District as shown on the zoning map
   d. Would jeopardize the town’s water supply or quality if inappropriately developed.

B. PROTECT ENVIRONMENTALLY SENSITIVE LANDS:

1. Protect the town’s ecologically important and environmentally sensitive lands and water bodies by means of acquisition of or protection of lands which:
   a. Lie within Areas of Critical Environmental Concern (ACEC) designated by the Secretary of Environmental Affairs.
   b. Lie within Other Areas of Environmental Concern defined as lands that are adjacent to or otherwise outside of the defined ACECs such as fresh and saltwater bodies, beaches (salt and fresh water), wetlands (marshes, swamps, bogs, meadow, ponds and creeks), floodplains and surrounding uplands.
   c. Provide refuge to federally or state listed endangered or threatened species or species listed as of special concern.
   d. Have significant indigenous species that provide a strong and diverse genetic pool for the species preservation.
   e. Provide “wildlife corridors” which allow movement and migration of wildlife to Orleans.

C. PROTECT WATER QUALITY OF SALT AND FRESH WATER BODIES:

1. Protect the water quality of the town’s salt and freshwater bodies by acquisition or preservation of lands such as:
### 2006 Conservation, Recreation and Open Space Plan

<table>
<thead>
<tr>
<th></th>
<th>PROTECT NATURAL RESOURCES OF RECREATIONAL AND ECONOMIC VALUES.</th>
</tr>
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<tbody>
<tr>
<td>a.</td>
<td>Those which abut marsh and wetlands;</td>
</tr>
<tr>
<td>b.</td>
<td>Watersheds to salt and freshwater bodies;</td>
</tr>
<tr>
<td>c.</td>
<td>Buffer strips of natural vegetation or other lands which could provide for drainage, the filtration of road runoff and other pollutants;</td>
</tr>
<tr>
<td>d.</td>
<td>Lands, the development of which present an unacceptable risk of increased pollution in the form of road runoff, septic leacheates, or the disturbance of the natural landscape or wildlife habitats.</td>
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<thead>
<tr>
<th></th>
<th>PROTECT THE TOWN’S SCENIC RESOURCES:</th>
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<tbody>
<tr>
<td></td>
<td>Acquire or preserve lands:</td>
</tr>
<tr>
<td>a.</td>
<td>Which are defined by the Massachusetts Scenic Landscape Inventory as “noteworthy” and “distinctive.”</td>
</tr>
<tr>
<td>b.</td>
<td>Along the navigable waterways or scenic byways that are part of the “Cape Cod” landscape and which protect the rural seaside character of the community. Such byways may be designated by the Town or State as “Scenic Roads”.</td>
</tr>
<tr>
<td>c.</td>
<td>Which preserve water views, scenic landscapes and vistas for public enjoyment.</td>
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<tr>
<th></th>
<th>PROTECT SIGNIFICANT HISTORICAL AND ARCHEOLOGICAL SITES:</th>
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<tbody>
<tr>
<td></td>
<td>Acquire or preserve lands which:</td>
</tr>
<tr>
<td>a.</td>
<td>Contribute to the unique Cape Cod character of the town.</td>
</tr>
<tr>
<td>b.</td>
<td>Contain historical or prehistoric resources.</td>
</tr>
<tr>
<td>c.</td>
<td>Meet the criteria of the National Register of Historic Places or the Massachusetts Historical Commission.</td>
</tr>
</tbody>
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### G. **CONTINUE ONGOING TOWN ACTION NECESSARY FOR AN EFFECTIVE OPEN SPACE PROGRAM:**

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<tbody>
<tr>
<td>1.</td>
<td>Pursue the preservation and protection of open space through the Town’s Open Space Committee (OS).</td>
<td>BOS</td>
</tr>
<tr>
<td>2.</td>
<td>Map fragile environmental areas and plan future open space acquisitions for their protection. Where possible, connect open space to create wildlife corridors.</td>
<td>Planning Dept.</td>
</tr>
<tr>
<td>3.</td>
<td>Pursue grants for environmental studies, planning, land acquisition and improvements.</td>
<td>Planning Dept.</td>
</tr>
<tr>
<td>4.</td>
<td>Improve public access to town-owned land by defining paths and passive recreation on public open space where appropriate.</td>
<td>Parks &amp; Beaches</td>
</tr>
<tr>
<td>5.</td>
<td>As land that would provide valuable linkage to open space areas is proposed for subdivision, negotiate with developers for pedestrian easements.</td>
<td>PB</td>
</tr>
<tr>
<td>6.</td>
<td>Promote continued town financial commitment to acquisition for public open space. Establish regular commitment in capital budget for land acquisition.</td>
<td>BOS</td>
</tr>
<tr>
<td>7.</td>
<td>Acquire or protect land in conformance with land acquisition objectives as described above (A – G).</td>
<td>OSC</td>
</tr>
<tr>
<td>8.</td>
<td>Maintain and update the Open Space Acquisition list.</td>
<td>OSC</td>
</tr>
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### H. **COORDINATE OPEN SPACE PROTECTION WITH ADJACENT TOWNS AND REGIONALY ACROSS CAPE COD.**

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<tr>
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<tbody>
<tr>
<td>1.</td>
<td>Cooperate with nearby jurisdictions to promote protection of regional resources. Seek State funding assistance to create the Namskaket beach conservation/recreation area, and to protect lands in Brewster that are adjacent to the Orleans watershed.</td>
<td>BOS</td>
</tr>
</tbody>
</table>

### I. **PROVIDE ACCESS TO OPEN SPACE FOR THOSE WITH VARYING PHYSICAL AND OTHER ABILITIES:**

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<tbody>
<tr>
<td>1.</td>
<td>All residents should live within walking distance of an accessible open space area. Conduct a service area analysis using quarter-mile radius of park parcels. Utilize for Open Space Committee recommendations for new areas.</td>
<td>PB</td>
</tr>
</tbody>
</table>
## RECREATION GOAL: MEET RESIDENTS’ RECREATIONAL NEEDS BY MAKING THE MOST OF THE TOWN’S UNPARALLELED RECREATIONAL ASSETS.

### A. MEET LOCAL RECREATION NEEDS THROUGH BALANCED OFFERING OF PROGRAMS

1. Develop recreation programs to meet the needs of all residents
   
   Rec. Dept.

2. Install resting benches along trails in parks and conservation areas.
   
   Parks & Beaches

3. Maintain extracurricular programs for Middle and High School students.
   
   Rec. Dept.

4. Continue to provide programming for fall, winter and spring for year-round residents with indoor as well as outdoor programs.
   
   Rec. Dept.

5. Provide essential professional staff for coordination and servicing programs. Consider additional staff, particularly year-round to provide expanded programs at convenient times.
   
   Rec. Dept.

### B. UPGRADE RECREATION FACILITIES AS NEEDED TO PROVIDE BETTER SERVICE TO RESIDENTS

1. Develop an all-purpose court for tennis/shuffle board/badminton/basketball at Eldredge Park.
   
   Rec. Dept.

2. Consider developing additional facilities based on “actual needs” described in plan. Complete cost estimates and location recommendations for cited facilities.
   
   Rec. Dept.

3. Consider staffing needs to provide more opportunities for use of the Community Center as an indoor recreation center.
   
   Rec. Dept.

4. Complete a cost estimate and feasibility study, and explore use of volunteers from senior center and other locations.
   
   Rec. Dept.

5. Maintain facilities and equipment to lengthen their life and usefulness and reduce capital costs. Continue maintenance of outdoor playing fields as regional and local recreation resource.
   
   Parks & Beaches

6. Make sure capital facilities and other equipment are used and maintained, and programs operated so as to protect the safety of the public and ensure the long-term success of programs.
   
   Parks & Beaches

### C. UPGRADE FRESH AND SALT WATER BATHING AND BOATING FACILITIES, WITH ASSISTANCE FROM THE HARBORMASTER AND OTHER AGENCIES WHERE APPROPRIATE

1. Explore the idea of a pool at a central location. Conduct a survey for the need for a year-round indoor swimming pool.
   
   Planning Dept.

2. Complete a management plan for town beaches, landings and boat launching sites, including sea level rise analysis.
   
   Parks & Beaches

3. Maintain public access to the waterfront. Continue legal research on deeds for town landings to identify precisely, areas owned by the town. Upgrade and improve town landings.
   
   Hrbr Mast.

4. Ensure that off road vehicle (ORV) use is compatible with resource protection.
   
   Parks & Beaches

5. Plan for and purchase land for additional parking and beach access at Nauset Beach, the Town’s largest public bathing beach, in response to erosion concerns.
   
   Parks & Beaches
### D. ENCOURAGE USE OF BICYCLES ON SAFE ROUTES TO REDUCE CONGESTION, CONSERVE ENERGY AND IMPROVE AIR QUALITY

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<tr>
<th></th>
<th>Description</th>
<th>Responsible Agency</th>
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<tbody>
<tr>
<td>1.</td>
<td>Continue efforts to connect the Rail Trail through Orleans and across Route 6.</td>
<td>Planning Dept.</td>
</tr>
<tr>
<td>2.</td>
<td>Develop a plan to connect a bikeway to South Orleans, with a goal of eventually establishing a link to Chatham. Conduct feasibility study and make cost estimate of link.</td>
<td>Hwy Dept., Water Com.</td>
</tr>
<tr>
<td>3.</td>
<td>Design, print and distribute a brochure/map promoting safe and attractive walking and bike routes.</td>
<td>Planning Dept.</td>
</tr>
<tr>
<td>4.</td>
<td>Install additional bicycle racks at beaches, parks and in commercial areas. Determine highest priority sites through use analysis and available funding.</td>
<td>Parks &amp; Beaches</td>
</tr>
<tr>
<td>5.</td>
<td>Explore the feasibility of creating a branch of the bike trail to a picnic area at Namskaket overlook, in cooperation with the Orleans Conservation Trust.</td>
<td>Planning Dept.</td>
</tr>
</tbody>
</table>

### E. PROVIDE RECREATION OPPORTUNITIES FOR RESIDENTS WITH VARYING LEVELS OF ABILITY: Encourage opportunities for year-round public recreation town-wide for all residents and visitors.

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<tr>
<th></th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Provide trails, parking and other means to ensure good access to recreation areas for all residents.</td>
<td>Parks &amp; Beaches</td>
</tr>
<tr>
<td>2.</td>
<td>Ensure that access for residents with special needs complies with or exceeds current applicable federal and state Americans With Disabilities Act (ADA) regulations.</td>
<td>Parks &amp; Beaches</td>
</tr>
<tr>
<td>a.</td>
<td>Make facility improvements to the ball fields behind the Elementary School to be fully handicapped accessible.</td>
<td>Parks &amp; Beaches</td>
</tr>
<tr>
<td>b.</td>
<td>Make handicapped accessibility improvements to band shell at Eldredge Park.</td>
<td>Parks &amp; Beaches</td>
</tr>
<tr>
<td>3.</td>
<td>Upgrade existing programs to meet needs of groups with special needs for mobility.</td>
<td>Parks &amp; Beaches</td>
</tr>
<tr>
<td>a.</td>
<td>Complete a user needs study to determine the extent of the population with disabilities and their needs for recreation programs.</td>
<td>Rec. Dept.</td>
</tr>
<tr>
<td>b.</td>
<td>Make French Cable Station Museum, Orleans Historical Society and similar buildings wheelchair accessible.</td>
<td>Commission on Disabilities</td>
</tr>
<tr>
<td>c.</td>
<td>Add accessible sidewalks wide enough to accommodate wheelchairs at the Town Hall, from the center of town to Tonset Woods, and in other important locations. Eliminate existing obstructions in sidewalks.</td>
<td>Hwy Dept.</td>
</tr>
</tbody>
</table>

### F. COORDINATE MANAGEMENT OF RECREATION RESOURCES WHICH CROSS TOWN BOUNDARIES:

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Responsible Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Cooperate with neighboring jurisdictions to promote regional coordination of inter-town resources such as Nauset Beach, Rock Harbor, long-distance bike trails and coastal and surface water quality.</td>
<td>Bikeways Committee</td>
</tr>
</tbody>
</table>
SECTION 9 – FIVE-YEAR ACTION PLAN

The five-year action program is designed to implement Orleans’ Conservation, Recreation, & Open Space Plan. The action plan directly addresses the conservation and recreation needs of the community as expressed in the analysis of community needs. The Plan elements are classified into one of three categories:

Expenditure – Strategies involving direct revenue outlays. Expenditure items include land acquisition, development costs, equipment purchases, and miscellaneous expenses.

Management – Strategies which utilize administrative skills and efforts to manage existing resources more effectively and to develop new programs to address recreation and conservation needs.

Regulatory – Strategies to more effectively manage and control use of conservation lands, and to limit adverse effects from human uses. (Includes bylaw amendments and other control strategies).

The Action Plan proposes the acquisition of a number of sites which are listed on the Targeted Parcels Map. However, should new sites be identified in the future that would further the open space and recreation objectives of this Plan, the Town should evaluate those areas and take appropriate action to protect them. Further, it should be noted that the timetable set for implementation is subject to change. Opportunities for acquiring open space cannot always be anticipated, and the Town must retain the flexibility to be able to act on each opportunity as it arises. The Action Plan has been designed to respond to changing local conditions, and sets out minimum, rather than maximum, efforts the Town wishes to take to pursue open space and recreation objectives over the next five years.

CONSERVATION

<table>
<thead>
<tr>
<th>GOAL #</th>
<th>OBJECTIVES</th>
<th>ACTIONS</th>
<th>SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.2</td>
<td>Continue to promote community gardens at Sea Call Farm and the Hopkins Lane Lot.</td>
<td>Work with interested citizens</td>
<td>Ongoing</td>
</tr>
<tr>
<td>E.3</td>
<td>Require greater setback from coastal banks for new construction</td>
<td>Amend Wetland Bylaw</td>
<td>2006</td>
</tr>
<tr>
<td>F.1</td>
<td>Draft or revise, and implement management plans for Town parcels committed to open space and recreation.</td>
<td>Coordinate efforts of Conservation, Parks &amp; Beaches, &amp; Recreation Depts.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>F.4</td>
<td>Work with Orleans Conservation Trust to include its parcels in Town-wide open space maps.</td>
<td>Seek OCT cooperation</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
### RECREATION

<table>
<thead>
<tr>
<th>GOAL #</th>
<th>OBJECTIVES</th>
<th>ACTIONS</th>
<th>SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.2</td>
<td>Install benches, drinking fountains at recreation areas</td>
<td>Parks &amp; Beaches to install</td>
<td>2007</td>
</tr>
<tr>
<td>B.6.</td>
<td>Complete management plans for conservation areas that allow passive recreation usage</td>
<td>Draft plans for approval</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Cons F.1</td>
<td>Select appropriate locations for small neighborhood playgrounds</td>
<td>Seek input from residents Identify where appropriate</td>
<td>2007</td>
</tr>
</tbody>
</table>

### OPEN SPACE

<table>
<thead>
<tr>
<th>GOAL #</th>
<th>OBJECTIVES</th>
<th>ACTIONS</th>
<th>SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1.a.</td>
<td>Protect well sites</td>
<td>Purchase available abutting property where available if property has protection value.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>A.1.a.b.c., B.1.e, C.1.a, D.1.e.g, E.1.b,(</td>
<td>Protect significant parcels targeted by this plan.</td>
<td>Open Space Committee to continue efforts and negotiations where appropriate.</td>
<td>2008</td>
</tr>
<tr>
<td>B.1.a., C.1.a, D.1.b.e, E.1.a,b.d.</td>
<td>Continue Skaket Area “Sea Path” Project.</td>
<td>Work with State to clean up Gavigan property rip-rap wall.</td>
<td>2007-2008</td>
</tr>
<tr>
<td>B, C, D, E with 30+ parcels, 80+ acres.</td>
<td>Continue land protection efforts</td>
<td>Approach to owners dependent on available funding/market availability</td>
<td>On going.</td>
</tr>
<tr>
<td></td>
<td>Monitor Chapter 61 Lands</td>
<td>Be prepared to respond quickly to market availability. Begin inquiries.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>H.1</td>
<td>Cooperate closely with Orleans Conservation Trust to optimize the opportunities for land preservation</td>
<td>Schedule annual strategy/goals review Determine opportunity for CR promotion on key parcels</td>
<td>2007-2008-2009</td>
</tr>
</tbody>
</table>
SECTION 10 - PUBLIC COMMENTS

Public input sessions were held on the plan update. Public comments received, and those obtained from town Committees and Boards, have been incorporated into this plan update. Full minutes and doings of all of the public meetings where the plan was discussed are available at the Orleans Town Hall. Below are the public meetings that took place during this Conservation Recreation and Open Space Plan update:

Orleans Open Space Committee: February 1st 2006
Orleans Planning Board: February 28th 2006
Orleans Board of Selectman: March 29th 2006 and May 5th 2006
Cape Cod Commission: May 19th 2006
SECTION 10 - LETTERS OF REVIEW - LOCAL BOARDS AND COMMITTEES
March 9, 2006

Mr. George Meservey, Director
Planning and Community Development
Town Hall
19 School Road
Orleans, MA 02653

Dear Mr. Meservey,

On behalf of the Orleans Open Space Committee, I would like to commend you and your staff for the efforts in preparing the 2006 update of the Conservation, Recreation and Open Space Plan. The document clearly outlines the strategies the Town should follow in attaining the open space goals outlined in the Town's Comprehensive Plan.

The Open Space Committee voted unanimously to endorse and approve this Plan at its regular monthly meeting held on February 1, 2006.

Sincerely Yours

Alan McClennen, Jr
Chairman
May 3, 2006

Mr. Alan McClennen, Jr., Chairman
Open Space Committee
19 School Road
Orleans, MA 02653

RE: CROS Plan Update

Dear Chairman McClennen:

I am writing on behalf of the Board of Selectmen regarding the recently completed update to the 1999 Conservation, Recreation, and Open Space Plan for the Town of Orleans. Please be advised that the Board of Selectmen has received and had the opportunity to review a copy of the draft plan and we would endorse its final approval by the Division of Conservation Services.

Sincerely,

[Signature]

Margie Fulcher, Chair
Board of Selectmen
Wednesday, March 01, 2006

Alan McClennen, Chairman  
Orleans Open Space Committee  
Orleans Town Hall  
19 School Road  
Orleans, MA 02653

Dear Allen,

At its February 28th meeting, the Orleans Planning Board unanimously voted to endorse the 2006 Conservation, Open Space, and Recreation Plan. The Board felt strongly that the plan was a comprehensive representation of the past achievements, present efforts and future goals of the Towns conservation, open space and recreations needs.

Sincerely,

Sims McGrath, Jr., Chairman  
Orleans Planning Board
May 19, 2006

Melissa Cryan
Division of Conservation Services
Executive Office of Environmental Affairs
100 Cambridge Street, 9th Floor
Boston, MA 02114

Re: Orleans Conservation and Recreation Open Space Plan

Dear Ms. Cryan:

I'm writing in support of the 2006 Town of Orleans' Conservation and Recreation Open Space Plan. The plan is a detailed document that will be an important tool for the town as it works towards its open space and recreation goals. In addition to an inventory of existing protected lands, the plan has excellent maps and written descriptions of wetlands, waterbodies, watershed areas and significant wildlife habitat. These resources, together with a detailed action plan and list of priority acquisitions will serve the town well as it moves to acquire land or make regulatory changes to improve land protection.

The plan is consistent with regional goals and objectives, and we encourage your support and approval of the plan.

Sincerely,

[Signature]
Heather McElroy
Natural Resources and Open Space Specialist

cc: George Meservey, Orleans Town Planner
Frank Hogan, Orleans representative to the Cape Cod Commission
APPENDIX A: 1999 Open Space Survey Form and Results
1. Choose the characteristics that to you, best describe Orleans:

<table>
<thead>
<tr>
<th>RAW NUMBERS</th>
<th>PERCENTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES NO BLANK</td>
<td>YES NO BLANK</td>
</tr>
<tr>
<td>a. A small seaside town</td>
<td>360 125 55% 19%</td>
</tr>
<tr>
<td>b. A community that has preserved its small town character</td>
<td>393 118 60% 18%</td>
</tr>
<tr>
<td>c. A shopping hub for surrounding towns</td>
<td>390 107 60% 16%</td>
</tr>
<tr>
<td>d. A resort community</td>
<td>252 167 38% 25%</td>
</tr>
<tr>
<td>e. A retirement community</td>
<td>423 68 65% 10%</td>
</tr>
<tr>
<td>f. A town that actively encourages preservation &amp; conservation</td>
<td>469 54 72% 8%</td>
</tr>
<tr>
<td>g. Other</td>
<td>68 4 10% 1%</td>
</tr>
</tbody>
</table>

2. How important is it to you to preserve: Choose three in order of priority, 1, 2, 3.

<table>
<thead>
<tr>
<th>RAW NUMBERS</th>
<th>PERCENTAGES</th>
<th>*WEIGHTED SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st 2nd 3rd BLANK</td>
<td>1st 2nd 3rd BLANK</td>
<td>377</td>
</tr>
<tr>
<td>a. Buildings/places of historical or architectural interest</td>
<td>29 84 122 4% 13% 19%</td>
<td></td>
</tr>
<tr>
<td>b. Public access to the shore</td>
<td>96 133 105 15% 20% 16%</td>
<td></td>
</tr>
<tr>
<td>c. Open spaces to meet our water and conservation needs</td>
<td>346 146 61 53% 22% 9%</td>
<td></td>
</tr>
<tr>
<td>d. Open spaces to meet our recreation needs</td>
<td>13 99 113 2% 15% 17%</td>
<td></td>
</tr>
<tr>
<td>e. The semi-rural character of the town</td>
<td>111 183 168 17% 28% 26%</td>
<td></td>
</tr>
<tr>
<td>Blank</td>
<td>40</td>
<td>6%</td>
</tr>
</tbody>
</table>

*Weighted scores for questions two and three were arrived at by giving 3 points for first place, 2 points for second place, and 1 point for third place.
3. The people of Orleans recently voted for the Land Bank. How would you rate priorities among the following objectives for protection under the Cape Cod Land Bank Bill? **Choose three** in order of priority, 1, 2, 3.

<table>
<thead>
<tr>
<th>RAW NUMBERS</th>
<th>PERCENTAGES</th>
<th>*WEIGHTED SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st</strong></td>
<td><strong>2nd</strong></td>
<td><strong>3rd</strong></td>
</tr>
<tr>
<td>a. Coastal lands (ocean/pond frontage, beaches, dunes)</td>
<td>192 164 97</td>
<td>29% 25% 15%</td>
</tr>
<tr>
<td>b. Forest lands</td>
<td>14 39 50</td>
<td>2% 6% 8%</td>
</tr>
<tr>
<td>c. Habitat, natural and/or wildlife</td>
<td>51 100 118</td>
<td>8% 15% 18%</td>
</tr>
<tr>
<td>d. Recreation (active)</td>
<td>14 18 33</td>
<td>2% 3% 5%</td>
</tr>
<tr>
<td>e. Scenic vistas</td>
<td>11 34 36</td>
<td>2% 5% 5%</td>
</tr>
<tr>
<td>f. Trails (walking &amp; biking)</td>
<td>8 41 60</td>
<td>1% 6% 9%</td>
</tr>
<tr>
<td>g. Wellfields, aquifers, recharge areas for drinking water</td>
<td>289 107 76</td>
<td>44% 16% 12%</td>
</tr>
<tr>
<td>h. Wetlands (fresh &amp; salt water marshes)</td>
<td>44 158 134</td>
<td>7% 24% 20%</td>
</tr>
<tr>
<td>Blank</td>
<td>22</td>
<td>3%</td>
</tr>
</tbody>
</table>

4. What residential growth policies do you favor for Orleans?

<table>
<thead>
<tr>
<th>RAW NUMBERS</th>
<th>PERCENTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
</tr>
<tr>
<td>a. Regulate growth in existing developed areas</td>
<td>515 40</td>
</tr>
<tr>
<td>b. Regulate growth in undeveloped areas</td>
<td>535 45</td>
</tr>
<tr>
<td>c. Encourage higher density in the Village Center</td>
<td>180 298</td>
</tr>
<tr>
<td>Blank</td>
<td>14</td>
</tr>
</tbody>
</table>

5. To preserve open space in Orleans, would you favor:

<table>
<thead>
<tr>
<th>RAW NUMBERS</th>
<th>PERCENTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
</tr>
<tr>
<td>a. Duplex housing</td>
<td>139 232</td>
</tr>
<tr>
<td>b. Cluster housing</td>
<td>273 162</td>
</tr>
<tr>
<td>c. Multi-unit housing</td>
<td>142 249</td>
</tr>
<tr>
<td>d. Larger than acre zoning</td>
<td>315 148</td>
</tr>
<tr>
<td>Blank</td>
<td>106</td>
</tr>
</tbody>
</table>
6. To preserve open spaces in town, would you:

<table>
<thead>
<tr>
<th>Option</th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
<th>BLANK</th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
<th>BLANK</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Contribute land to the town</td>
<td>32</td>
<td>104</td>
<td>375</td>
<td>5%</td>
<td>16%</td>
<td>57%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Contribute land to a conservation trust</td>
<td>85</td>
<td>74</td>
<td>366</td>
<td>13%</td>
<td>11%</td>
<td>56%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Sell land to the town at a “bargain price”</td>
<td>38</td>
<td>106</td>
<td>357</td>
<td>6%</td>
<td>16%</td>
<td>55%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Donate money to buy land</td>
<td>256</td>
<td>147</td>
<td>107</td>
<td>39%</td>
<td>22%</td>
<td>16%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Vote for town-supported land acquisition</td>
<td>547</td>
<td>25</td>
<td>20</td>
<td>84%</td>
<td>4%</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Rewrite your deed to limit future use of your land</td>
<td>94</td>
<td>130</td>
<td>286</td>
<td>14%</td>
<td>20%</td>
<td>44%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Sell or contribute a conservation restriction</td>
<td>108</td>
<td>69</td>
<td>324</td>
<td>16%</td>
<td>11%</td>
<td>49%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blank</td>
<td></td>
<td></td>
<td>36</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. How satisfied are you with the places for children and youth to play and recreate in town?

<table>
<thead>
<tr>
<th>Option</th>
<th>YES</th>
<th>BLANK</th>
<th>YES</th>
<th>BLANK</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Very satisfied</td>
<td>150</td>
<td>23%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Satisfied</td>
<td>380</td>
<td>58%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Dissatisfied</td>
<td>60</td>
<td>9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blank</td>
<td>65</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. How satisfied are you with the places available in town for recreational use by adults?

<table>
<thead>
<tr>
<th>Option</th>
<th>YES</th>
<th>BLANK</th>
<th>YES</th>
<th>BLANK</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Very satisfied</td>
<td>148</td>
<td>23%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Satisfied</td>
<td>384</td>
<td>59%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Dissatisfied</td>
<td>92</td>
<td>14%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blank</td>
<td>31</td>
<td>5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9. What new or expanded recreational facilities would you like to see constructed in Orleans? (Choose three)

<table>
<thead>
<tr>
<th>RAW NUMBERS</th>
<th>PERCENTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BLANK</td>
</tr>
<tr>
<td>a. Beaches</td>
<td>104</td>
</tr>
<tr>
<td>b. Bike trails</td>
<td>175</td>
</tr>
<tr>
<td>c. Conservation areas</td>
<td>250</td>
</tr>
<tr>
<td>d. Picnic areas</td>
<td>63</td>
</tr>
<tr>
<td>e. Children’s play areas</td>
<td>54</td>
</tr>
<tr>
<td>f. Fields for soccer, softball, baseball, football</td>
<td>31</td>
</tr>
<tr>
<td>g. Golf course</td>
<td>112</td>
</tr>
<tr>
<td>h. Hiking and skiing trails</td>
<td>99</td>
</tr>
<tr>
<td>i. Neighborhood parks</td>
<td>117</td>
</tr>
<tr>
<td>j. Public access to fresh &amp; salt water bodies and shorelines</td>
<td>258</td>
</tr>
<tr>
<td>k. Swimming pool (indoor)</td>
<td>119</td>
</tr>
<tr>
<td>l. Tennis courts</td>
<td>35</td>
</tr>
<tr>
<td>m. Town landings</td>
<td>82</td>
</tr>
<tr>
<td>n. None</td>
<td>42</td>
</tr>
<tr>
<td>o. Other/blank</td>
<td>71</td>
</tr>
</tbody>
</table>

10. Should the town act to: (Choose one, your highest priority)

<table>
<thead>
<tr>
<th>RAW NUMBERS</th>
<th>PERCENTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>a. Improve its conservation land with low-key amenities</td>
<td>109</td>
</tr>
<tr>
<td>b. Improve town landings</td>
<td>33</td>
</tr>
<tr>
<td>c. Construct new recreational facilities</td>
<td>27</td>
</tr>
<tr>
<td>d. Acquire additional open space</td>
<td>353</td>
</tr>
<tr>
<td>e. Provide more parking at beaches, landings, etc.</td>
<td>55</td>
</tr>
<tr>
<td>f. Other</td>
<td>35</td>
</tr>
<tr>
<td>Blank</td>
<td></td>
</tr>
</tbody>
</table>
11. What do you like best about living in Orleans?

<table>
<thead>
<tr>
<th>Raw Numbers</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small town, rural atmosphere</td>
<td>177</td>
</tr>
<tr>
<td>Availability of ocean, lakes, beaches &amp; boating</td>
<td>162</td>
</tr>
<tr>
<td>Natural resources &amp; beauty</td>
<td>124</td>
</tr>
<tr>
<td>Town conveniences, shopping, restaurants, etc.</td>
<td>90</td>
</tr>
<tr>
<td>Friendliness, nice people</td>
<td>89</td>
</tr>
<tr>
<td>Blank</td>
<td>53</td>
</tr>
</tbody>
</table>

12. What do you like least about living in Orleans?

<table>
<thead>
<tr>
<th>Raw Numbers</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer traffic</td>
<td>224</td>
</tr>
<tr>
<td>Increasing development</td>
<td>85</td>
</tr>
<tr>
<td>Blank</td>
<td>76</td>
</tr>
<tr>
<td>Summer crowds</td>
<td>73</td>
</tr>
<tr>
<td>Lack of municipal golf course</td>
<td>24</td>
</tr>
<tr>
<td>Unattractive town center</td>
<td>24</td>
</tr>
<tr>
<td>Lack of safe walking &amp; biking</td>
<td>21</td>
</tr>
</tbody>
</table>

13. How long have you been a resident of Orleans?

<table>
<thead>
<tr>
<th>Raw Numbers</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Less than 4 years</td>
<td>119</td>
</tr>
<tr>
<td>b. 5 to 10 years</td>
<td>135</td>
</tr>
<tr>
<td>c. 11 to 15 years</td>
<td>92</td>
</tr>
<tr>
<td>d. 15 to 25 years</td>
<td>139</td>
</tr>
<tr>
<td>e. more than 25 years</td>
<td>165</td>
</tr>
<tr>
<td>Blank</td>
<td>5</td>
</tr>
</tbody>
</table>
14. What best describes the area of town in which you live?

<table>
<thead>
<tr>
<th>RAW NUMBERS</th>
<th>PERCENTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>BLANK</td>
</tr>
<tr>
<td>YES</td>
<td>BLANK</td>
</tr>
<tr>
<td>a. South Orleans</td>
<td>146</td>
</tr>
<tr>
<td>b. East Orleans</td>
<td>258</td>
</tr>
<tr>
<td>c. Rock Harbor</td>
<td>74</td>
</tr>
<tr>
<td>d. All other Orleans areas</td>
<td>158</td>
</tr>
<tr>
<td>Blank</td>
<td>19</td>
</tr>
</tbody>
</table>

15. Do you or anyone in your household own property in town?

<table>
<thead>
<tr>
<th>RAW NUMBERS</th>
<th>PERCENTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Yes</td>
<td>79%</td>
</tr>
<tr>
<td>b. No</td>
<td>20%</td>
</tr>
<tr>
<td>Blank</td>
<td>1%</td>
</tr>
</tbody>
</table>

16. Which of the following best describes your household? (Check all that apply)

<table>
<thead>
<tr>
<th>RAW NUMBERS</th>
<th>PERCENTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>a. Children under 12 living in the household</td>
<td>44</td>
</tr>
<tr>
<td>b. Children from 13 – 18 living in the household</td>
<td>27</td>
</tr>
<tr>
<td>c. Working part-time</td>
<td>71</td>
</tr>
<tr>
<td>d. Working full time</td>
<td>124</td>
</tr>
<tr>
<td>f. Retired</td>
<td>165</td>
</tr>
<tr>
<td>Blank</td>
<td>268</td>
</tr>
</tbody>
</table>
APPENDIX B: 2005 Comprehensive Plan Resident/Taxpayer Survey
In August, a copy of the Orleans Resident / Taxpayer went out to every head of household in the Town. A total of 1,237 were received back resulting in a favorable response rate of 24%. Listed below are the survey questions and the response percentages for each answer. Further analysis of the survey data will be used throughout the Comprehensive Plan as the Planning Board prepares the five year plan update.

Thank you for all that participated!

Growth & Development

Orleans currently has approximately 7,000 year-round residents. Based on current zoning regulations, the population could grow to greater than 11,000. If seasonal homes become occupied year-round, the population could be even higher. This could increase the demand for many Town services and would likely result in higher property taxes.

1. Would you agree with making efforts to set a cap on total population through changes in regulations, even if it meant giving up some of your own current development rights in order to preserve the quality of life in Orleans?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.34%</td>
<td>32.17%</td>
<td>4.37%</td>
<td>11.96%</td>
<td>8.65%</td>
</tr>
</tbody>
</table>

2. How is the Town doing in regulating development in the following areas?

<table>
<thead>
<tr>
<th>Too Strict</th>
<th>Adequate</th>
<th>Not Strict Enough</th>
<th>Don’t Know</th>
</tr>
</thead>
</table>
   a. Business development | 8.65% | 47.29% | 22.80% | 18.43% |
   b. Residential development | 4.61% | 38.80% | 42.76% | 10.91% |
   c. Wetland protection | 9.30% | 43.49% | 31.45% | 12.85% |

Housing

Orleans has a chronic shortage of lower priced housing that makes it difficult for some residents to remain and for businesses to hire employees. A Town goal is to have 10% of the housing stock qualified by State standards as “affordable” (currently, 8.5% of housing units are qualified as affordable).

3. Would you agree with the Town buying land and developing rental housing that qualifies under State regulations as affordable housing?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>28.13%</td>
<td>36.22%</td>
<td>4.53%</td>
<td>15.84%</td>
<td>13.58%</td>
</tr>
</tbody>
</table>

4. Would you agree that the Town should consider alternative ways, such as temporary abatement of taxes, to encourage housing that is lower priced and thus attainable by middle-income families?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.94%</td>
<td>41.31%</td>
<td>8.97%</td>
<td>18.19%</td>
<td>9.05%</td>
</tr>
</tbody>
</table>
Assisted living is a living arrangement that provides help with everyday tasks such as bathing, dressing, and medications. Orleans is the eldest Town by age of population in the Commonwealth, and yet it has no assisted living dwellings.

5. Would you agree to support the Town actively encouraging the development of an assisted living facility?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>33.23%</td>
<td>43.01%</td>
<td>6.55%</td>
<td>10.19%</td>
<td>5.50%</td>
</tr>
</tbody>
</table>

6. Are you aware of individuals or families in the workforce who need rental or ownership housing at the present time?

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>1-3 people</th>
<th>4-6 people</th>
<th>7 people or more</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>66.21%</td>
<td>20.29%</td>
<td>7.44%</td>
<td>4.61%</td>
</tr>
</tbody>
</table>

Village Center

The Orleans Planning Board is working towards a Village Center Master Plan for Orleans that will define the vision for downtown, recommend streetscape and pedestrian improvements, define market areas for expansion and develop an overall economic development strategy for the downtown. Coordination of transportation and wastewater management infrastructure will be essential to a successful downtown.

7. The local economy will be evolving over the next 20 years in response to residential growth in Orleans and other nearby towns. Would you agree that the Town should be actively involved in shaping the future of business and activities in the downtown?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>50.20%</td>
<td>37.03%</td>
<td>2.26%</td>
<td>5.17%</td>
<td>4.12%</td>
</tr>
</tbody>
</table>

8. Would you agree to support spending $125,000 in the Capital Improvement Plan as scheduled in Fiscal Year 2009 for the Village Center Master Plan?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.12%</td>
<td>40.99%</td>
<td>10.67%</td>
<td>7.92%</td>
<td>7.84%</td>
</tr>
</tbody>
</table>

Mixed-Use

A Town goal is to encourage the Village Center to become a mixed-use area, with business and residential uses together. The bylaws currently allow up to 3 dwellings in a commercial building.

9. Would you agree to support increased density in the Village Center, in the form of more 2nd floor housing?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>29.99%</td>
<td>43.57%</td>
<td>5.90%</td>
<td>13.42%</td>
<td>5.74%</td>
</tr>
</tbody>
</table>

10. The Town has taken steps to foster development in “business nodes”, including Skaket Corners, the Village Center, and Cranberry Plaza, and limiting further commercial strip development. Would you agree that more steps should be taken in this regard, i.e. further downzoning along Route 6A?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>37.11%</td>
<td>39.37%</td>
<td>7.36%</td>
<td>10.91%</td>
<td>3.48%</td>
</tr>
</tbody>
</table>

Another component of a healthy Village Center is a well-conceived traffic plan, including sufficient parking and walkways.

11. Do you think it is a good idea for the Town to purchase property downtown for more public parking?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.65%</td>
<td>38.32%</td>
<td>10.67%</td>
<td>21.02%</td>
<td>11.96%</td>
</tr>
</tbody>
</table>
12. Do you think it is a good idea to develop connecting paths in the Village Center to make the area more walkable?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>42.12%</td>
<td>40.26%</td>
<td>6.95%</td>
<td>7.92%</td>
<td>2.18%</td>
</tr>
</tbody>
</table>

Traffic

Each summer, Orleans roads are overwhelmed by the sheer volume of cars on the roads. Many key intersections operate in a “failure” condition throughout the summer months, making it difficult to move around town. Without improvements to the local road network, the situation will become worse in the future, as traffic increases by 1.6% annually. Yet, a basic tenet of the Town Plan is to maintain the semi-rural character of the community. Based on this information, how would you respond to the following statement?

13. The Town should fund the Highway Department at an appropriate level to reconstruct and add capacity to our roadways where necessary to maintain traffic movement and safety. What volume level should the roads be sized for?

<table>
<thead>
<tr>
<th>Enough for Peak Summer</th>
<th>Mostly for Peak Summer</th>
<th>No Opinion</th>
<th>Mostly for Yr- rd traffic</th>
<th>Only for Yr- rd traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.75%</td>
<td>24.58%</td>
<td>4.04%</td>
<td>50.53%</td>
<td>8.41%</td>
</tr>
</tbody>
</table>

14. Would you agree to expansion of safe biking facilities in Orleans? These could include a new bike trail from the Town Center to South Orleans, a Bay Ridge Lane connection to the Rail Trail, and/or a bike lane to East Orleans?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>37.59%</td>
<td>36.30%</td>
<td>7.11%</td>
<td>10.11%</td>
<td>7.76%</td>
</tr>
</tbody>
</table>

Environmental Protection

Population increase is beginning to have significant impacts on the natural environment. In the mid-1980s, Meetinghouse Pond was closed for shellfishing due to high bacteria levels. Actions taken to improve treatment of stormwater runoff resulted in a lifting of the closure in 1987. Today, many coastal bays and coves are experiencing accelerated eutrophication, due to nitrogen loading. We now know that the primary source of the nitrogen is septic systems, and that even a brand new Title5 system does not remove nitrogen. This problem has the potential to foul our waters and make Orleans a less desirable community.

15. Would you agree to further increasing restrictions on land development to protect coastal waters, even if it limited your ability to expand your home?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>44.95%</td>
<td>34.60%</td>
<td>3.48%</td>
<td>9.94%</td>
<td>5.58%</td>
</tr>
</tbody>
</table>

16. Would you agree to support developing strict Nitrogen loading standards for all contributing land in order to protect coastal waters?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>43.82%</td>
<td>36.62%</td>
<td>7.28%</td>
<td>6.79%</td>
<td>3.64%</td>
</tr>
</tbody>
</table>

17. Would you be willing to pay a betterment fee to tie into town sewer or into a neighborhood treatment plant in order to protect Orleans coastal resources?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>34.68%</td>
<td>41.07%</td>
<td>9.38%</td>
<td>7.84%</td>
<td>5.25%</td>
</tr>
</tbody>
</table>
18. Assuming that wastewater facilities could serve at least half of the dwellings in Orleans, what part of the capital costs for wastewater treatment should be borne by real estate taxes compared to betterments and user fees:

<table>
<thead>
<tr>
<th></th>
<th>100%</th>
<th>75%</th>
<th>50/50%</th>
<th>75%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxes</td>
<td>7.68%</td>
<td>8.25%</td>
<td>47.05%</td>
<td>16.57%</td>
<td>13.34%</td>
</tr>
<tr>
<td>Taxes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Open Space
A Town goal is to preserve 400 acres of the remaining open space. Since 2001, approximately 150 acres have been preserved through purchase, gift or conservation restriction. Land Bank funds are almost fully committed, meaning any future purchases would have an impact on the tax rate.

19. Would you agree to support additional taxes to purchase and protect more open space?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.75%</td>
<td>37.11%</td>
<td>8.33%</td>
<td>17.30%</td>
<td>13.50%</td>
</tr>
</tbody>
</table>

Natural Resources
Orleans' waterways and shellfish resources are managed by the Harbormaster/ Shellfish Department. Annually, the department spends $18,000 for shellfish “seed” that is transplanted into local waters. There are also 24 shellfish grants that are leased for private aquaculture. These activities support both recreational and commercial shellfishing.

20. Would you agree to expansion of the shellfish seeding program?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.01%</td>
<td>42.60%</td>
<td>22.80%</td>
<td>13.50%</td>
<td>3.40%</td>
</tr>
</tbody>
</table>

21. Would you agree to promotion of private aquaculture in Town waters even if it led to decreased areas for boating?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.94%</td>
<td>34.92%</td>
<td>21.34%</td>
<td>22.23%</td>
<td>10.11%</td>
</tr>
</tbody>
</table>

Beaches
Nauset Beach has experienced significant erosion over the past few years, far in excess of the long-term rate of 5 feet per year. In 10 or 20 years, the snack bar and parts of the parking lot may need to be relocated further away from the shoreline.

22. Would you agree to efforts by the Town to buy land for beach parking farther back from the shoreline?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.89%</td>
<td>45.51%</td>
<td>10.19%</td>
<td>12.53%</td>
<td>8.33%</td>
</tr>
</tbody>
</table>
Community Facilities & Services

23. To help us plan for the future, the Town should (1) increase support for the following activities or services, (2) maintain support at the present level or (3) decrease support? Assume that an increase in support could mean an increase in taxes.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Increase</th>
<th>Maintain</th>
<th>Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Library programs</td>
<td>20.78%</td>
<td>75.59%</td>
<td>1.62%</td>
</tr>
<tr>
<td>B. Bikeways</td>
<td>47.78%</td>
<td>43.33%</td>
<td>6.71%</td>
</tr>
<tr>
<td>C. Public rest rooms</td>
<td>33.87%</td>
<td>62.00%</td>
<td>2.18%</td>
</tr>
<tr>
<td>D. Tourist/information services</td>
<td>4.53%</td>
<td>81.57%</td>
<td>11.56%</td>
</tr>
<tr>
<td>E. Public parks</td>
<td>18.03%</td>
<td>75.51%</td>
<td>2.91%</td>
</tr>
<tr>
<td>F. Public safety activities:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F1. Police</td>
<td>18.35%</td>
<td>75.75%</td>
<td>3.80%</td>
</tr>
<tr>
<td>F2. Fire and Rescue</td>
<td>20.53%</td>
<td>73.89%</td>
<td>2.91%</td>
</tr>
<tr>
<td>F3. Harbormaster</td>
<td>10.91%</td>
<td>80.52%</td>
<td>5.17%</td>
</tr>
<tr>
<td>G. Waterfront activities and facilities:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G1. Boating</td>
<td>9.46%</td>
<td>79.63%</td>
<td>7.44%</td>
</tr>
<tr>
<td>G2. Shellfishing</td>
<td>15.84%</td>
<td>76.56%</td>
<td>4.45%</td>
</tr>
<tr>
<td>G3. Beaches</td>
<td>20.05%</td>
<td>76.23%</td>
<td>1.37%</td>
</tr>
<tr>
<td>H. Road maintenance</td>
<td>33.63%</td>
<td>61.68%</td>
<td>.89%</td>
</tr>
<tr>
<td>I. Drainage improvements</td>
<td>36.05%</td>
<td>59.01%</td>
<td>1.29%</td>
</tr>
<tr>
<td>J. Sidewalks</td>
<td>31.61%</td>
<td>59.66%</td>
<td>6.06%</td>
</tr>
<tr>
<td>K. Public parking</td>
<td>32.98%</td>
<td>57.07%</td>
<td>5.50%</td>
</tr>
<tr>
<td>L. Public transportation:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1. Town</td>
<td>30.07%</td>
<td>54.97%</td>
<td>8.81%</td>
</tr>
<tr>
<td>L2. Regionally</td>
<td>35.89%</td>
<td>50.69%</td>
<td>8.33%</td>
</tr>
<tr>
<td>M. Public water supply system</td>
<td>28.86%</td>
<td>67.02%</td>
<td>.73%</td>
</tr>
<tr>
<td>N. Conservation programs</td>
<td>37.27%</td>
<td>53.44%</td>
<td>5.90%</td>
</tr>
<tr>
<td>O. Recycling facility and services</td>
<td>26.76%</td>
<td>68.63%</td>
<td>1.86%</td>
</tr>
<tr>
<td>P. Senior Center Programs (COA)</td>
<td>19.16%</td>
<td>74.21%</td>
<td>3.64%</td>
</tr>
<tr>
<td>Q. Education/Schools</td>
<td>21.83%</td>
<td>71.71%</td>
<td>3.80%</td>
</tr>
<tr>
<td>R. Human/ Social Services</td>
<td>21.58%</td>
<td>71.54%</td>
<td>4.12%</td>
</tr>
</tbody>
</table>

24. The Town currently supplies water to a very small number of Eastham residences. Would you agree to support supplying a larger portion of Eastham residences with Orleans Town water service if it were found to have no adverse effect on the supply or quality of our drinking water reserve, and would have a favorable financial impact for Orleans?

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17.22%</td>
<td>54.89%</td>
<td>8.25%</td>
<td>7.52%</td>
<td>5.25%</td>
</tr>
</tbody>
</table>
25. The Council on Aging is looking to become involved in a program called “Program for All-Inclusive Care for the Elderly” (PACE) that provides elders with comprehensive, in-home services that are similar to those provided in an assisted living facility. The program would allow many older residents to remain in their homes while receiving assisted living services at a cost that is lower than moving into an assisted living facility. The program would not involve the hiring of new employees, and services would be paid by the recipients.

Would you agree to the Town actively encouraging the development of the PACE Program?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<td>53.60%</td>
<td>37.83%</td>
<td>3.96%</td>
<td>1.78%</td>
<td>1.29%</td>
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Demographic Information

I am a:

A. Year-round resident property owner  65.97%
B. Year-round resident, non-property owner  6.71%
C. Seasonal resident, non-property owner .89%
D. Non-resident property owner  25.63%

Please indicate your employment status.

A. Employed full-time  32.50%
B. Employed part-time  6.31%
C. Unemployed .40%
D. Semi-retired  7.60%
E. Retired  48.99%
F. Student .16%
G. Home maker  1.94%
H. Other  1.21%

Are you presently on a Town committee?

YES  9.05%  NO  89.41%

Do you attend Town Meeting?

44.95%  51.33%

Have you accessed the Town website in the last year?

46.32%  52.06%

Would you want to receive notice of Town events by email?

46.00%  50.69%

Please indicate the approximate Percent of Board of Selectmen’s meetings you attended, or watched on TV, over the past year:

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<th>30 - 50%</th>
<th>50 - 70%</th>
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<td>3.40%</td>
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APPENDIX C: List of Town Conservation and Open Space Parcels
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APPENDIX G: Town Owned Open Space and Recreation Lands
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<td>Herring Run:</td>
<td>35 Herwig Brook Way (Lonnie's Pond)</td>
<td>Conservation Commission</td>
<td>Permanent (M.G.L. c. 40, s.8C)</td>
<td>0.5</td>
<td>Good</td>
<td>Herring Run</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Public Watershed</td>
<td>368 S Orleans Rd</td>
<td>Town - Board of Water Commissioners</td>
<td>Full (Water Supply Land)</td>
<td>4.0</td>
<td>Excellent</td>
<td>Public Watershed - Hiking, Walking</td>
<td>YES- ON FOOT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>360 S Orleans Rd</td>
<td>Town - Board of Water Commissioners</td>
<td>Full (Water Supply Land)</td>
<td>3.9</td>
<td>Excellent</td>
<td>Public Watershed - Hiking, Walking</td>
<td>YES- ON FOOT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>365 S Orleans Rd</td>
<td>Town - Board of Water Commissioners</td>
<td>Full (Water Supply Land)</td>
<td>7.0</td>
<td>Excellent</td>
<td>Public Watershed - Hiking, Walking</td>
<td>YES- ON FOOT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>33 Portmaincut Rd</td>
<td>Town - Board of Water Commissioners</td>
<td>Full (Water Supply Land)</td>
<td>3.9</td>
<td>Excellent</td>
<td>Public Watershed - Hiking, Walking</td>
<td>YES- ON FOOT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>60 Queenst Rd</td>
<td>Town - Board of Water Commissioners</td>
<td>Full (Water Supply Land)</td>
<td>11.2</td>
<td>Excellent</td>
<td>Public Watershed - Hiking, Walking</td>
<td>YES- ON FOOT</td>
<td></td>
</tr>
<tr>
<td>Coggan Property</td>
<td>32 Winfield Lane</td>
<td>Town - Board of Water Commissioners</td>
<td>Full (Water Supply Land)</td>
<td>3.8</td>
<td>Excellent</td>
<td>Public Watershed - Hiking, Walking</td>
<td>YES- ON FOOT</td>
<td></td>
</tr>
<tr>
<td>Cape Cod Rail Trail Main Street</td>
<td>340-342 Main Street</td>
<td>Town of Orleans - Highways</td>
<td>Full (dedicated use - deed)</td>
<td>5.6</td>
<td>Good</td>
<td>Biking, Walking, Horseback Riding</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>West Rd</td>
<td>Town of Orleans - Highways</td>
<td>Full (dedicated use - deed)</td>
<td>0.7</td>
<td>Good</td>
<td>Biking, Walking, Horseback Riding</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Rd</td>
<td>Town of Orleans - Highways</td>
<td>Full (dedicated use - deed)</td>
<td>0.2</td>
<td>Good</td>
<td>Biking, Walking, Horseback Riding</td>
<td>YES</td>
<td></td>
<td></td>
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<tr>
<td>243 Rock Harbor Rd</td>
<td>Town of Orleans - Highways</td>
<td>Full (dedicated use - deed)</td>
<td>2.2</td>
<td>Good</td>
<td>Biking, Walking, Horseback Riding</td>
<td>YES</td>
<td></td>
<td></td>
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<tr>
<td>42 Canal Rd</td>
<td>Town of Orleans - Highways</td>
<td>Full (dedicated use - deed)</td>
<td>0.3</td>
<td>Good</td>
<td>Biking, Walking, Horseback Riding</td>
<td>YES</td>
<td></td>
<td></td>
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<tr>
<td>140 Louse Rd</td>
<td>Town of Orleans - Highways</td>
<td>Full (dedicated use - deed)</td>
<td>0.4</td>
<td>Good</td>
<td>Biking, Walking, Horseback Riding</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eldredge Park</td>
<td>124 Main Street</td>
<td>Town of Orleans - Parks and Beaches</td>
<td>Full (dedicated use - deed)</td>
<td>0.7</td>
<td>Excellent</td>
<td>Town Green</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Nauset Beach</td>
<td>239 Beach Road</td>
<td>Town of Orleans - Parks and Beaches</td>
<td>Full (dedicated use - deed)</td>
<td>109.5</td>
<td>Good</td>
<td>Bathing Beach</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>South Beach</td>
<td>Town of Orleans - Parks and Beaches</td>
<td>Full (dedicated use - deed)</td>
<td>55.5</td>
<td>Good</td>
<td>Bathing Beach</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX H: Action Plan Map
**Five Year Action Plan**

<table>
<thead>
<tr>
<th>Action Map Key</th>
<th>Goal #</th>
<th>Objectives</th>
<th>Actions</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.2</td>
<td>Continue to promote community gardens at Sea Call Farm and the Hopkins Lane Lot</td>
<td>Work with interested citizens</td>
<td>Ongoing</td>
<td></td>
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<tr>
<td>E.3</td>
<td>Require greater setback from coastal banks for new construction</td>
<td>Amend Wetland Bylaw</td>
<td>2008</td>
<td></td>
</tr>
<tr>
<td>F.1</td>
<td>Work with Orleans Conservation Trust to include its parcels in Town-wide open space map</td>
<td>Design educational displays for self-guided trails at Baker’s Pond, Christian property, John Miles</td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td>F.4</td>
<td>Work with Orleans Conservation Trust to include its parcels in Town-wide open space map</td>
<td>install benches, drinking fountains at recreation areas</td>
<td>2007-2009</td>
<td></td>
</tr>
<tr>
<td>A.4</td>
<td>Install benches, drinking fountains at recreation areas</td>
<td>Work with Orleans Conservation Trust to include its parcels in Town-wide open space map</td>
<td>Ongoing</td>
<td></td>
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<tr>
<td>B.3</td>
<td>Select appropriate locations for small neighborhood playgrounds</td>
<td>Seek input from residents, identify where appropriate</td>
<td>2007</td>
<td></td>
</tr>
<tr>
<td>A.1</td>
<td>Protect wetlands</td>
<td>Purchase available abutting property where available if property has protection value</td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td>B.1</td>
<td>Protect significant parcels targeted by this plan</td>
<td>Open Space Committee to continue efforts and negotiations where appropriate</td>
<td>2008</td>
<td></td>
</tr>
<tr>
<td>B.2</td>
<td>Continue Shaker Area “Sea Path” Project</td>
<td>Work with State to clean up Gurnet property rip-rap wall</td>
<td>2007-2008</td>
<td></td>
</tr>
<tr>
<td>B.3</td>
<td>Continue land protection efforts with 30+ acre parcels, 80+ acre parcels</td>
<td>Approach to owners dependent on available funding/market availability</td>
<td>On going</td>
<td></td>
</tr>
<tr>
<td>B.4</td>
<td>Monitor Chapter 61 Land</td>
<td>Be prepared to respond quickly to market availability/Jan. inquiries</td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td>H.1</td>
<td>Cooperate closely with Orleans Conservation Trust to optimize the opportunities for land preservation</td>
<td>Schedule annual strategy/goals review. Determine opportunity for CR promotion on key parcels</td>
<td>2007-2008, 2009</td>
<td></td>
</tr>
</tbody>
</table>