2011

Growth Incentive Zone Application

Prepared by the Bourne Planning Department

DOWNTOWN BOURNE - Village of Buzzards Bay

December 2011

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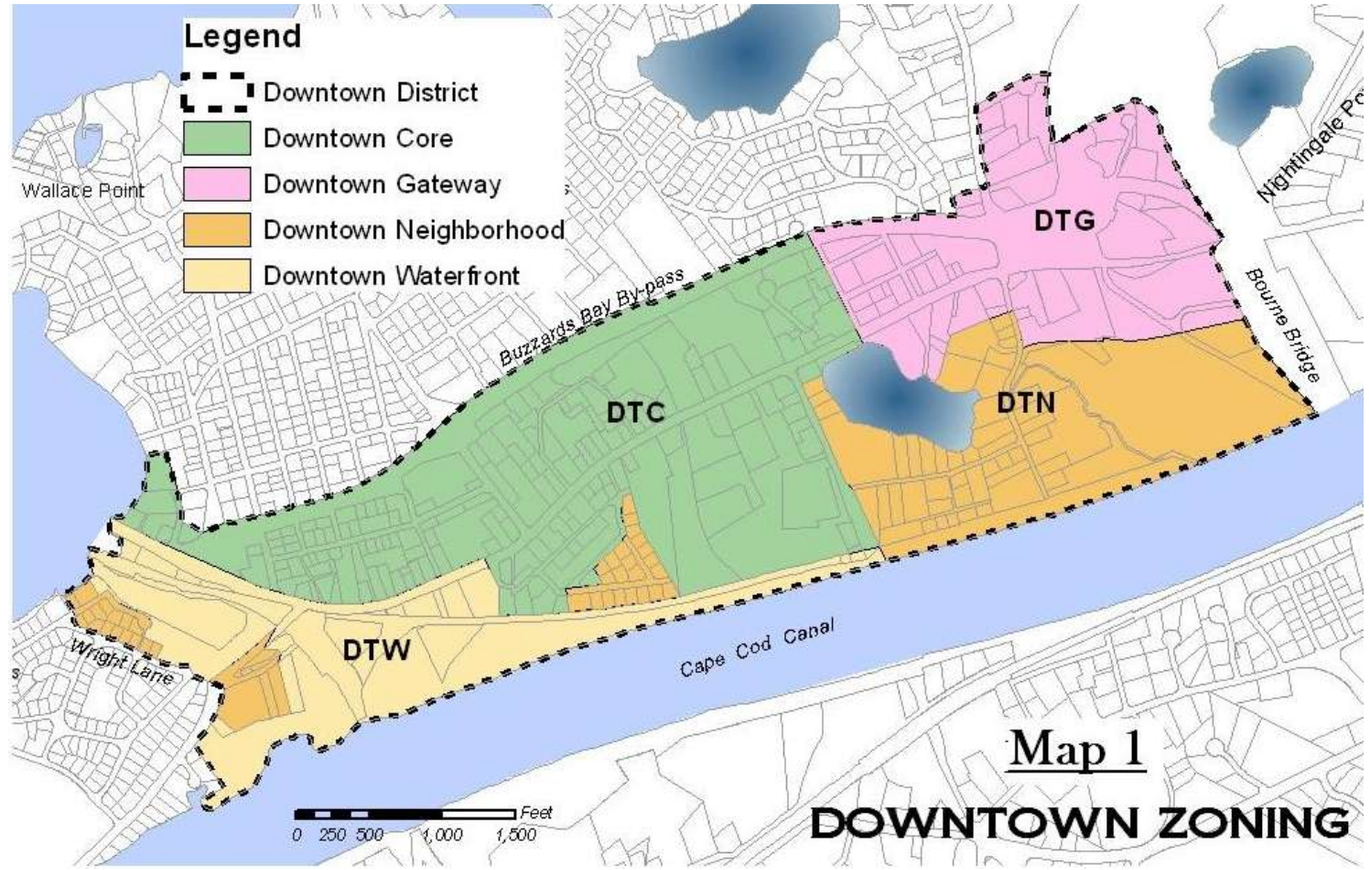
I. INTRODUCTION

The Town of Bourne has compiled this document as a application to the Cape Cod Commission requesting the designation of a Growth Incentive Zone (GIZ) in the Village of Buzzards Bay in the area now known as Bourne's Downtown. This designation will allow more local control by raising the Development of Regional Impact (DRI) thresholds in the boundary shown in this application. According to the Regional Policy Plan the purpose of a Growth incentive Zone (GIZ) is to direct development and redevelopment into areas with existing development and adequate infrastructure. With the GIZ designation Bourne can enhance its economic center by allowing a concentrated mix of residential and commercial uses.

The Village of Buzzards Bay has been identified in the town's Local Comprehensive Plan (LCP) as a place for desired growth, particularly commercial and mixed-use growth. Buzzards Bay is unique among Bourne's village centers in that it has direct highway access and public infrastructure, including sewer and water (albeit limited). Capitalizing on the existing infrastructure, Bourne's LCP includes goals to focus development north of the Canal and specifically in Buzzards Bay. One of the LCP's "Highest Priority Actions for Land Use" identifies the Main Street area of Buzzards Bay as the focus area for directing new commercial growth. Both the LCP and the Cape Cod Regional Policy Plan indicate the preferred patterns of growth to be redevelopment and infill, stressing the need to protect undeveloped areas and critical resources.



Downtown Buzzards Bay has many underperforming properties including both residential and commercial. This plan proposes to maximize these properties by using the existing infrastructure while minimizing the negative impacts of growth. This plan focuses on the potential for people to live and work on a smaller footprint while supporting the revitalization plan for Downtown. It focuses on the unique opportunity for people of various means to live as neighbors unified by a common desire for active social interaction in a livable, workable, walk-able village. The Village of Buzzards Bay has played an important role in Bourne's civic and government center since 1884. The area has been a hub for transportation for nearly 400 years, first

as a maritime port for freight shipments from Europe, then as a railroad hub between Boston and New York. Main Street once served as the main connector to the Cape for those traveling from major cities west and south. However construction of the Buzzards Bay Bypass in 1956 and the construction of I-195 and I-495 resulted in the rerouting those traveling through Buzzards Bay and causing a significant drop in business traffic.

In March of 2008 the Bourne Financial Development Corporation (Bourne's economic arm) commissioned a study for the purpose of facilitating creative thinking beyond Main Street. The result of that study was the creation of a "Vision Plan for Bourne's Downtown". Through the work of the vision plan the Town adopted new zoning for the Village of Buzzards Bay specifically for the area that is now known as Bourne's Downtown. Using the GIZ in conjunction with the newly adopted zoning otherwise known as "form-based code" that allows for higher-density, mixed use development will provide a clear incentive for those interested in investing in Downtown Buzzards Bay.

The new zoning divided the Downtown into four separate zones as depicted in Map 1 on page 3:

- The Downtown Gateway (DTG)
- The Downtown Waterfront (DTW)
- The Downtown Neighborhood (DTN)
- The Downtown Core (DTC)

DTG, DTW, and DTC are all very similar, allowing for much higher density and mixed use. The DTN remains a conventional suburban zoning district without significant change and little opportunity for further development. The zoning in the DTG, DTW, and DTC allows for four-story buildings by right with a Floor-Area Ratio (FAR) of 2:1. This includes commercial uses on the first two floors and residential uses above. Taller buildings can be built with a special permit. More common forms of commercial and residential development, such as single-story retail and individual houses, are either not permitted or allowed only by special permit. The zoning also encourages shared parking and parking structures to allow greater on-site density. The purpose of creating this zoning was to encourage and even require urban development forms in the Downtown.

Zoning and Growth Management:

Zoning outside the GIZ boundary is not slated to change at this time due to Bourne's limited commercial land base. Currently Bourne's commercial land consists of only 1,238 acres, 4.7% of Bourne's total land base and therefore has very limited growth potential. In addition, commercial properties outside the GIZ will still be subject to the 10,000 square foot threshold for Developments of Regional Impacts.

Zoning within the proposed Growth Incentive Zone was changed to encourage businesses to locate in the Downtown by increasing density, along with the GIZ designation it would enable the town to increase the square-footage thresholds that normally trigger Commission review – thereby allowing larger projects to go forward on Main Street with local review only. Nothing is more important to the long-term viability of the Downtown than allowing for the broad and flexible use of properties. Bourne's Downtown is envisioned as the commercial, cultural, residential and institutional center of Bourne; a vibrant destination for local residents and visitors alike. Enhancing this vitality requires strong residential

neighborhoods in and around downtown, new higher density mixed use development, and a pedestrian friendly and safe urban core. The new zoning has stricken a balance between the need to allow redevelopment and avoid unnecessary regulations.

Demographics and Trends

Bourne is the 4th largest town on Cape Cod with a total of 41 square miles that span the Cape Cod Canal, including the Bourne and Sagamore bridges. However, 40% or 16.4 square miles of the town's land area is occupied by the Massachusetts Military Reservation. The town has approximately 23 square miles in public/semi-public/tax exempt categories, which includes a total of 9.3 square miles classified as open space. Of this, 2.5 square miles are owned by the town and 6.8 square miles are owned by other land trust entities. As a result of this large amount of public or tax-exempt property, there are relatively few areas suitable for commercial or industrial development. In fact, only 1.9 square miles are zoned for commercial use and only contributes 9 - 11% of the tax revenues. The Downtown Buzzards Bay project area represents approximately 10% of this commercial/industrial land base.

With the limited development opportunities posed by the presence of the Massachusetts Military Reservation, the Cape Cod Canal, the large amount of exempt properties, and the state/federal roadway system, the town is quickly reaching build-out under current zoning. The Downtown area is one of only four remaining areas of the town with development or redevelopment potential (MacArthur Boulevard, Bournedale and the new configured area of Sagamore beach area are the others).

1. Population: The Town of Bourne has a winter population of just fewer than 20,000 and summer population of about 50% higher, which is typical for communities on Cape Cod. Cape Cod and Bourne in particular continue to see increases in year-round population but not in peak seasonal increases, which results in excess capacity during the off-seasons. New highways are generally not needed for year-round use, and only select roadways that have been long inadequate need to be improved. MISER (Mass Institute of Social & Economic Research) mid series predictions calculate that under current population growth rates, the year-round population of Bourne will be 25,130 by 2020 and 29,470 by 2026, the current population according the Town Clerk 20,351 (2011).

2. Housing**:** According to the 2010 Census, the Town of Bourne had a total of 8,584 year round dwelling units, per DHCD 568 qualified as affordable units giving Bourne 6.6% towards the States mandate of 10%. The Village of Buzzards Bay is home to more than 4,500 of Bourne's residents (nearly 25% of the town's population). The village has a relatively higher percentage of residents between 15 and 24 due largely to the student population at the Massachusetts Maritime Academy (MMA). About 21% of residential properties in Bourne are seasonal dwellings. However, about one third of residential tax values are collected from the same. According to the town assessors' records, average assessed values for homes owned by seasonal residences is about one third higher than housing values for year-round residences (about $520,000 vs. $396,000 in FY05).

3. Employment Trends: There have been significant changes in Bourne's employment conditions between 1990 and 2000. The Agriculture and Fisheries sector dropped from 2,732 jobs to 874 (-68%); Manufacturing declined from 6,421 to 4,875 jobs (-24%); Retail Trade from 18,846 to 15,022 (-20%); and Health and Education increased from 12,589 to 22,732 (+81%).

4. Tourism and Community Events: The Cape Cod Canal Region Chamber of Commerce estimates that there are approximately 150,000 visitors to Buzzards Bay annually. This estimate is based on attendance at the visitor center (about 27,000 per year) and local events including about 50,000 at the annual Scallop Festival and 3,000 at the Concerts on the Park. Additional events in Buzzards Bay that draw local residents and visitors include the BBVA road race, St. Margaret's Carnival in the Park, March of Dimes Walk on the Canal, ALS events, YWCA events and several other seasonal events and programs.

5. General Land Use Trends: According to the town's Local Comprehensive Plan, 90% land in Bourne outside the Massachusetts Military Reservation is developed. The edges of the Downtown Buzzards Bay Project Area are well defined, with the Cape Cod Canal to the south, the Buzzards Bay Bypass to the north, Belmont Circle to the east, and Memorial Circle and the Taylor's Point neighborhood to the west. The majority of land in the project area is privately owned. The Town of Bourne, however, is the single largest property owner. Additionally, the state owns some properties around the former railroad station, and the Army Corps of Engineers (ACOE/federal government) owns the lands adjacent to the Cape Cod Canal and several other adjacent parcels in the project area. The project area is largely divided into small parcels of land with the majority of owners having one or two properties.

6. Economic Trends: Among the most common occupations in Bourne are Management, professional and related occupations, 36%; Sales and office occupations 25%; and Service occupations at 14%. Approximately 69 percent of workers in Bourne work for companies, 16 percent work for the government and 10 percent are self-employed[2].

Commercial uses contribute about 40% of tax revenues and another 40% is contributed from residential property. Residential properties are more densely developed within the project area compared to other areas of Bourne but are underperforming in terms of their assessment value and, therefore, property tax contribution. Residential growth has been limited in the Downtown project area; between 1999 and 2008 only 1 single family home and 26 condominium or apartments were constructed in the downtown as compared to 2,800 single-family homes and 460 condominium units constructed town wide.

Buzzards Bay Economic Data [1] Statistic	Number	U.S. Rank (Percentile)	State Rank (Percentile)
% People in Labor Force	62.1%	12,621 (of 25,150) (50%)	171 (of 235) (27%)
% Drive Alone to Work	74.2%	17,403 (31%)	184 (22%)
% Take Public Transportation	1.1%	5,919 (76%)	154 (34%)
% Walk to Work	6.4%	4,438 (82%)	36 (85%)
Average Commute Time (Minutes)	28.7	6,098 (76%)	70 (70%)
% Households making less than $10,000	9.7%	12,645 (50%)	70 (70%)
% Households making over $200,000	1.7%	5,327 (79%)	116 (51%)
Median Household Income	$39,750	8,627 (66%)	178 (24%)
% Households Receiving Public Assistance	1.6%	16,547 (34%)	133 (43%)
Per Capita Income	$18,304	9,420 (63%)	201 (14%)

The Downtown area has a limited supply of land for future commercial development, although the development potential under the newly adopted zoning allows for significant increases in density. Of the remaining undeveloped but developable land, about 5.5 acres categorized on Main Street are classified as developable parcels. These are non-contiguous and scattered parcels for the most part. There are also a few large publicly-owned parcels that have development potential, and a few large privately owned

[1] *Information taken from www.statjump.com*

[2] *According to Simply Hired" website on 5.20.11*

parcels that have redevelopment potential. The largest and most developable parcel is located across the street from Town Hall and was permitted for a 40B condominium project with 80 units on 12 acres. Though the project has been canceled, there is very good potential for a high density mixed-use, town-centered development on the same parcel.

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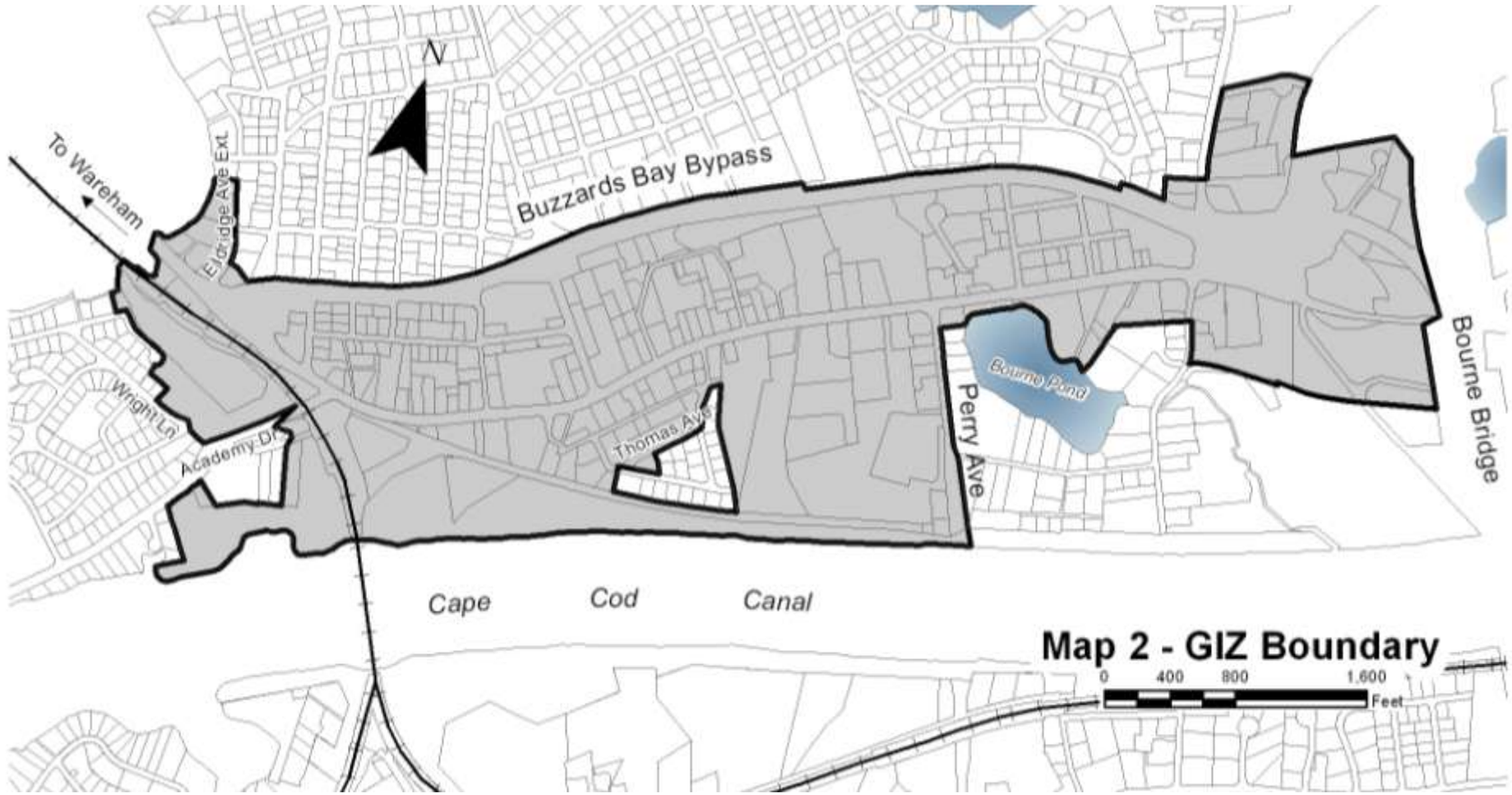
II. PROPOSED GROWTH INCENTIVE ZONE BOUNDARY

The boundary of the proposed Growth Incentive Zone is as shown on the adjacent Map 2. The GIZ is basically equal to the area of the new downtown district excluding the residential neighborhoods. The GIZ is generally bounded by the Buzzards Bay Bypass, the approach to the Bourne Bridge, Perry Avenue, along the bank of the Cape Cod Canal, to Academy Dr, Wright Lane, across the Cohasset Narrows to Eldridge Ave ext back to the Bypass. Bourne is in the process of recreating its Downtown, with new zoning, different traffic patterns, greater density, and new infrastructure. Bourne is seeking to have the Downtown serve as a civic center as well as a destination for marine education, research and development, entertainment, and recreation. Downtown should be unique and different from other parts of Town, it should be inviting to local residents and visitors alike.



The designation of the Downtown as a GIZ is part of the bigger picture for Bourne. The Town continues to seek other ways to make the Downtown attractive to developers, such as, streetscape improvements, a housing rehabilitation program, and a sign and façade improvement program.

The Town of Bourne is proposing a cumulative approach for its Growth Incentive Zone; due to the restriction on wastewater flows. The Town is requesting flexibility to move throughout the GIZ boundary as shown on Map 2. Bourne has been approached by a developer proposing an assisted living facility to be located across the street from Town Hall; in addition other inquiries for development have also been made for other parts of the downtown. Therefore we are requesting that relief be granted for the entire GIZ boundary by instituting a threshold relating to the wastewater restriction. We do realize that much of development can only occur after wastewater treatment is expanded. However we are requesting flexibility to move throughout the GIZ boundary depending on the readiness of a project or the failure of a project to proceed.

Growth Incentive Zone Description

The GIZ boundary essentially encompass' the new Downtown District adopted in 2008, see GIZ boundary map on page 9.

Site Characteristics: The proposed GIZ boundary has a total of 284 acres including 255 parcels ranging from 0.002 acres to 10.57 acres.

Land Use: 43% of the properties in the downtown are solely used as commercial, the following shows the breakdown of the land use by parcels, using the state class code maintained by the assessor; *(See map in appendix for the actual land use)*

- Protected open space - 1 Parcel *(Owned by the Town)*
- Vacant - 17 Parcels
- Residential units - 227
- Charitable - 2
- Cemetery - 1
- Churches - 2
- Commercial 109 Parcels
- Municipal and Semi Public i.e. Water Districts - 21 Parcels
- Parcels used exclusively as residential - 88

Topography: The topography east to west within the downtown has a differential elevation of approximately 40 feet *(See contour map in the Appendix).* The low points are obviously nearer the Canal, the more northeastern portion of the downtown area is at the highest elevation. According to the new (not yet adopted) flood zone maps the downtown area ranges from 4 to 6 feet below the FEMA base flood elevation. The entire landform is in the glacial outwash plain composed of Carver soil.

Wetlands and Wildlife *(See wetland map in Appendix):* The proposed GIZ has approximately 4 acres of wetland resources within its boundaries including 5173 linear feet of coastal bank along the Canal. The downtown has a total of 48 acres± of undisturbed wooded area; the wooded undisturbed area consists of seven separate areas ranging from 2.2 acres to 24.0 acres. The most western portion, west of the railroad tracks is designated as priority habitat. However no other areas within the Downtown are so designated.

Flood Zone: Approximately one half of the proposed GIZ Boundary site is located within an AE 100-year flood zone, as shown on the Flood Map in Section V Environmental Attributes, a portion west of the railroad tracks is designated as VE, also the 100-year flood zone however is determined to have wave action during a storm event. Most of the Downtown area is considered as Land Subject to Coastal Storm Flowage, in addition is located in the SLOSH zone.[3]

Note that the GIZ boundary is not located in a Zone II, Water Resource District or any CCC designated wellhead protection areas or potential public water supply areas.

Soils: *(See Soils Map in the Appendix)* Soils within the GIZ boundary consist of Amostown Sandy Loam (AmA) and Udipsamments Smoothed (Ud), according to the Soil Survey of Barnstable County prepared by the U.S. Soil Conservation Service (SCS). AmA is a very deep, nearly level and gently sloping moderately well-drained soil found in depressions and swales in areas of glacial lake deposits. It is typically covered by about one inch of undecomposed pine needles, leaves and twigs and one inch of partly and well decomposed organic material. Permiability is moderately rapid in the subsoil to moderately slow in the substratum. Ud levels are nearly level soils that have been excavated or filled during construction. They typically have a friable loamy sand layer several inches deep, underlain by several feet of loose course sand, but they vary from area to area. Groundwater was observed at a depth of 78” to 84”.

Utilities and Services: The GIZ boundary has access to a number of utilities and service, including water, sewer (however limited), gas, electricity, and telephone. Primary road access is by the way of Main Street and the Buzzards Bay Bypass.

Water: Buzzards Bay Water district The Buzzards Bay Water District receives its water supply from four groundwater sources supplied by the Plymouth / Carver aquifer. Station 2 is located off Kettle Lane and Stations 1, 3 and 4 are all located off Bournedale Road. Each well has its own pump station and chemical feed equipment. Groundwater is naturally filtered through soil usually not requiring additional filtration, however, potassium hydroxide (KOH) is used to raise the pH of the water. Water pumped is used by the residents and commercial enterprises, and what is remaining is stored in two storage tanks. The tanks provide pressure and fire protection for the District. The total capacity of the two tanks is two million gallons. This capacity helps ensure consistent supply to all residences during high peak demand periods. The Buzzards Bay Water district is currently permitted for 530,000 GPD which meets the current needs; however, according to buildout projections additional supply is needed. The Bourne wastewater planning committee is working with the district superintendent to find a location for a new well.

Recommended Actions:

- The development of a permanent long-term tertiary wastewater treatment facility or facilities, public or private
- A transportation management plan and implementation schedule *(depending upon intensity of the proposed development)*
- The development of a permanent long-term tertiary wastewater treatment facility or facilities, public or private, to serve at least the development.
- A comprehensive transportation management plan and implementation schedule, taking inconsideration implementation of the BBVA Comprehensive Transportation Plan including changes to the Belmont Rotary.

[3] *Sea, Lake, and Overland Surges by Hurricanes (SLOSH) zones, as determined by the US Army Corps of Engineers (1994).*

One major drawback is traffic; because of the Belmont Rotary, which would create severe traffic problems that would not be problematic for a development located farther to the west, down Main Street. Developments in the area would be exempted from Cape Cod Commission review depending on the type and intensity of the proposed redevelopment and the mitigation of transportation issues and if its development would not exceed the wastewater cap.

Recommended Actions:

- The development of a permanent long-term tertiary wastewater treatment facility or facilities, public or private, to serve at least the proposed development.
- A comprehensive transportation management plan and implementation schedule, taking inconsideration implementation of the BBVA Comprehensive Transportation Plan including changes to the Belmont Rotary.
- The development of a permanent long-term tertiary wastewater treatment facility or facilities, public or private, to serve at least the development in the designated area, especially the 43D site
- A comprehensive downtown transportation management plan and implementation schedule
- Zoning and design controls to accommodate development in a flood plain.

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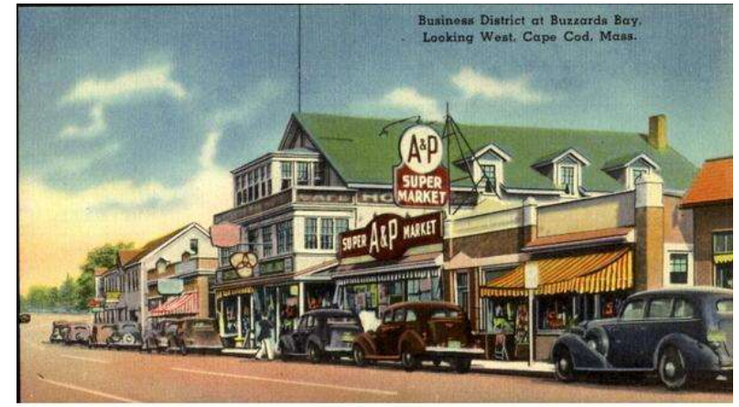
III. GENERAL DESCRIPTION OF EXISTING DEVELOPMENT

Downtown Bourne has many uses, the nature and extent of those uses, however, are far less than what would be typical of a healthy downtown. While there are, within certain areas, some commercial, residential and institutional uses, the mix of those uses and their relatively low densities falls far short of what is needed for a healthy, well-functioning downtown. Some of the uses that were historically in the downtown have disappeared or changed over the years.



A once healther Main Street seen on an old postcard date unknown

Land Use Types

The Assessor's database (2010) and the Planning Departments GIS database was used to find the area, land use, and characteristics. The following table lists the composition of existing land use within the Downtown.

Downtown Land Area by Use	SF	AC
Cemetery	4,356	0.10
Charitable Organizations	201,395	4.62
Churches, Synagogues &Temples	182,517	4.19
Commercial	3,809,391	87.45
Mixed Use	105,632	2.42
Open Space/Forest/Chapter Lands	641,084	14.72
Public/Semi Public	1,176,230	27.00
Recreational	34,412	0.79
Residential	3,185,504	73.13
Vacant Developable	878,733	20.17
Vacant Undevelopable	77,363	1.78

Residential: Residential growth in the last decade has been in short supply in the Buzzards Bay area, in the last decade only 6 of the 2,800 single-family homes and 16 out of 460 condominium units constructed in Bourne were located in Buzzards Bay. Residential properties are more densely developed within Downtown area (*currently there are 336 residential units in the downtown)* compared to other areas of Bourne but are underperforming in terms of their assessments and values, and therefore their property tax contributions.

Commercial/Retail: There is ample commercial development in the downtown, although many are underutilized given the prior zoning. Commercial development in Buzzards Bay contributes about 40% of tax revenues.

Municipal Land and Structures: While the majority of land in the downtown area is privately owned, there are a number of key parcels that house essential public services or provide open space and recreational opportunities. Perhaps most notable is the Town Hall on Perry Avenue. The downtown also is host to several other critical facilities such as the fire department head quarters, the Police Station, the Community/Senior Center. These structures are considered an essential component of public service, although there is recognition that they can be affected by flooding. There are also several parcels that contain recreational fields, owned open space, and the Town Park. Overall, the town of Bourne is the single largest property owner on Main Street. The state owns some properties around the former railroad station and the Federal Army Corps of Engineers owns the lands adjacent to the Cape Cod Canal and several other parcels. *(See map VII in appendix)*

Institutional: Perhaps most notable of all institutional developments on Cape Cod is the Massachusetts Maritime Academy (MMA) – Cape Cod's only four-year educational institution and one of the finest maritime colleges in the nation. Though it logically is built in a flood-zone, it contains one of the tallest buildings in Barnstable County. The MMA can serve as an institutional and economic anchor for downtown redevelopment.

Recreation: Buzzards Bay has sizable areas that are used specifically for recreation, and more areas that could be used. Aside from the athletic field at the Community Center, there are additional areas of town-owned open space in the center of town and most prominent is the Buzzards Bay Park that was focus of an international design competition. There is also a bike trail along both sides of the Canal that serves as a place for recreation and scenic vistas. Any development plan should consider how to aggregate growth on higher areas of downtown while preserving some of the most flood-prone areas as civic space with low development potential.

Historic Structures (*See Historic Resources Map VI in appendix*)**:** Buzzards Bay has a number of historic structures and sites on Main Street, several of them are commercial structures as shown on the Historic Resources map. According to the recommendations of the Town's consultant Public Archaeology Laboratory, Inc. (PAL) the Main Street Commercial Area does not appear to meet the eligibility requirements for the listing in the National Register of Historic Places. The area contains numerous examples of various periods and styles typical of the late 19th and early 20th century residential and commercial architecture, many with artificial siding, replacement windows, and new additions. It lacks the visual continuity for the National Register eligibility as a district under Criterion C. While it possesses several individual buildings with potential local historical significance and the historic of the development of the area reflects the overall growth of the town, the area lacks a strong cohesive historic theme or specific events to qualify under Criteria A or B.

Of primary concern are historic structures in the flood zone that cannot be moved. Particularly those made of masonry, are very difficult and expensive if not impossible to move. These structures can have some on-site improvements to make them more flood resistant, or to make their use less consequential in a flood situation. Thought needs to be given as well to those structures that may be historic in nature but have no particular state or federal protections. In the instance where such a structure is located where future growth could go, there may be a conflict between retention of the structure and economic development goals.

Affordable Housing: The Town of Bourne was well on its way of reaching the States mandate of 10% Affordable housing until the release of the 2010 Census. According to the 2000 Census data Bourne reached 7.3%, which represents 568 subsidized units. As of the date of the publication of this document the percentage of subsidized units has dropped to 6.6%. According to the 2010 Census data year round housing has increased by 797 therefore decreasing the percentage of affordable housing units in Bourne.

[4]Existing Housing Stock within the GIZ Boundary

Total Housing Units	261
Occupied Housing	220
Vacant Housing	41
Rental	148
Ownership	72
Housing Types	
Single Family	99
Units: 2	16
Units: 3-4	13
Units: 5-9	1
Units: 10-19	1
Units: 20+	2
Affordable Units	36

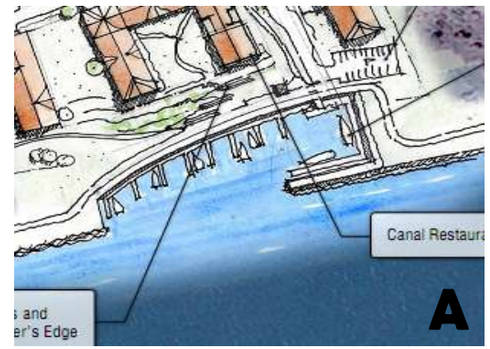
[4] *Information obtained from Town of Bourne's GIS data, Assessors data and U.S. 2010 Census Bureau – American Fact Finder*

Downtown Buzzards Bay's growth of affordable units has been severely limited. Within the last ten years the downtown has only seen the permitting of 25 affordable units of which only four (4) have been built. The implementation of the GIZ in the Downtown represents an opportunity to provide affordable housing, particularly because of the increase density and the allowance for many housing types, such as apartments and townhouses, rather than detached, single-family homes that dominate other areas of town.

Under the newly adopted zoning for downtown, 10% of all residential units in any development of more than 10 such units must be made affordable. Because of the requirement for a minimum of 2 stories, there is ample opportunity to provide in excess of 10 units in most new buildings. Mixed-income housing is allowed to build up to 1 unit/2,500 square feet of lot area, or 17+ units per acre of lot area.

Municipal Harbors: Downtown contains one of the most important maritime environments in southern New England. The southwestern end of the Cape Cod Canal is home to the Massachusetts Maritime Academy, one of New England's premier four-year learning institutions. The Canal serves as a major tourist attraction and visual benefit. For example, both sides of the Canal feature bicycle paths, although access from Main Street proves difficult. The bike paths serve as both a recreational benefit as well as a continuous path for potential access to the downtown. Attention should be paid to increasing the visibility of and access to the bike path, especially to and from one or several key points in the downtown.

Planning efforts for downtown have also examined the idea of creating a central urban harbor/waterfront that would serve as an attraction to boaters and tourists. Several concepts have been developed that include development of the waterfront area and even structural basins that allow for temporary boat docking and related or associated retail development. The Downtown Vision Plan provides several different scenarios for a "boat basin" that would allow docking, retail, entertainment and even housing. A planning exercise performed by the Cecil Group on a property across the street from town hall created a redevelopment vision including a mixed-use development with a boat basin (A) in addition, the Downtown Vision Plan also included a possible boat basin (B) . While any of these scenarios would require lengthy and difficult Army Corps of Engineers approval, it is nevertheless a helpful and proactive way to tie development on Main Street to water-dependent uses on the Canal.



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IV. INFRASTRUCTURE AND SERVICES

Wastewater Treatment: Wastewater capacity is the single greatest limiting factor in downtown redevelopment. Buzzards Bay has a wastewater treatment system, which is shared with the town of Wareham. Connection to this treatment system came about through an Intermunicipal Agreement (IMA) in the 1980s and most recently updated. While the connection relieved the most severe wastewater problems in town, a number of estuaries still suffer from nitrogen pollution.

The current system involves two major separate collection systems: 1) east rotary to west rotary, bypass to Canal including Bourne Oaks, Continental Apartments, and all buildings surrounding the east rotary and 2) Hideaway Village. In Buzzards Bay, the sewer system extends from the former Quintal's Restaurant on the Scenic Highway at the east end of town to the Bourne/Wareham town line on the west. Projects currently planned in the downtown area to be connected to the sewer system include an Assisted Living Facility with a reserved capacity of 23,000 gpd, and the National Marine Life Center at 12,500 gpd, in total, there are nearly 1,000 units currently connected to the sewer system.

Sewage is pumped through the town to the Wareham wastewater treatment plant through a series of grinder pumps, including one behind the fire department on Main Street, which is in a deteriorated condition. In addition, the two sewage pumps are long overdue for replacement, and any significant growth in the downtown will require that existing sewer lines be replaced with lines of a larger diameter in order to accommodate increased flow.

In 2007, Tighe and Bond completed a comprehensive wastewater study which concluded that the downtown area had the highest and most imperative need for wastewater treatment of any area of town. This was due to the high groundwater and floodplain issues, significant predicted economic redevelopment, and limitations of capacity due to the connection to Wareham's wastewater treatment system.

The IMA between the towns of Bourne and Wareham allows for treatment of 200,000 gpd. This IMA expired in 2009; the towns have renegotiated the terms of the agreement at the same level as the previous agreement, with some minor changes in the notification procedure. Part of the 200,000 gallons is already used by existing demand, as much as 126,000 gpd during the highest use period (July).

The maximum allowable gallonage that can be sent to Wareham is 200,000 gallons per day (gpd). A discussion with the Sewer Inspector George Tribou has revealed that the winter sewer usage is approximately 10,000 gpd for the Hideaway housing complex, and 85,000 gpd for the remainder of the Downtown, leaving approximately 105,000 gpd. Mr. Tribou has cautioned us that the usage numbers quoted are the winter estimates, summer usage is higher due to the increase of the summer residential and tourist population. Of the remaining gallonage **23,000 gpd has been reserved for the Assisted Living Housing project** proposed for Perry Avenue across form Town Hall, leaving approximately 82,000 gpd. And additional 10,000 gpd is set aside for potential Hideaway usage leaving 32,000 gpd for summer usage and other small projects outside the GIZ, therefore **leaving approximately 40,000 gpd for new projects** in the Downtown. This is inadequate for allowing significant growth in the downtown, however enough to accommodate a number of noteworthy projects. .

The Massachusetts Estuaries Project (MEP) provides information that the Massachusetts Department of Environmental Protection (MassDEP) uses to assess what is known as Total Maximum Daily Loads (TMDL) of nitrogen for estuaries in coastal Massachusetts. TMDLs are regulatory limits that define the maximum pollutant load that a waterbody can accept and still meet Massachusetts water quality standards. A major source of nitrogen pollution is standard septic systems, which remove none of the nitrogen in wastewater. Lower levels of nitrogen can only be achieved by advanced wastewater treatment at regional, centralized or decentralized treatment facilities. Although TMDL studies for the Buzzards Bay watersheds have not been completed, several other estuaries (such as Phinney's Harbor) are contributing excess nutrients. Phinney's Harbor, for example, must reduce its nitrogen load by 68%. The fact that increased growth in Downtown is planned around expanded wastewater treatment means that there are opportunities to maintain and even reduce nitrogen loading in key Buzzards Bay watersheds, such as Buttermilk Bay/Little Buttermilk Bay. TMDL reports for these areas are still in draft form.

New and greatly expanded wastewater treatment will be needed to allow significant growth and redevelopment in the rest of the downtown. The leading wastewater options include renegotiation for allowance of larger wastewater volumes with Wareham (not considered feasible) or constructing a new wastewater treatment facility in Bourne off the Scenic Highway near the new elementary school site (already examined by town-sponsored studies as a likely site). Because obtaining increased capacity from Wareham through renegotiation is unlikely, Bourne is currently working with Tighe & Bond to identify options and alternatives for wastewater treatment. At present, it is estimated that a substantial wastewater treatment plant capable of treating wastewater flows from Buzzards Bay at maximum 20-year development levels will need to have a minimum capacity of 461,000 gpd at buildout. According to the Tighe and Bond Study, study area 1 (the downtown area) will need approximately 206,000 gpd assuming 180,000 gpd will be pumped to Wareham for treatment and disposal.

Description

The amount of wastewater that can be expected from any given source, commercial or residential, varies depending upon the assumptions used. In the case of current wastewater loading, Tighe and Bond has used an estimation of an average of 50 gallons per day per 1,000 square feet for commercial development. This is a number based on recent historic trends, which may not necessarily reflect what would happen under a prosperous redevelopment scenario. George Tribou, Sewer Inspector, has estimated that 75 gallons per day per 1,000 square feet is a more accurate estimation of wastewater loads. This number has been confirmed by Sue Guswa at Tighe and Bond as conservative. Therefore, a year-round average of 75 gallons per day per 1,000 square feet of commercial use is assumed.

Residential use generally relies on an estimation of 110 gallons per day per bedroom. At an average of two bedrooms per unit in the downtown, an estimate of 220 gallons per day per unit is assumed. This number has been confirmed by both Sue Guswa of Tighe and Bond and George Tribou, Bourne Sewer & Plumbing Inspector as reasonable and even conservative.

Water Supply: The Buzzards Bay Water District supplies public water to the downtown area as well as most of Buzzard Bay. Water supply is less of a restriction than wastewater capacity, but the supply is limited far beyond what is needed for even a substantial buildout. The district has well sites on the north side of the Scenic Highway along with two water tanks with a combined capacity of 2 million gallons. The water district is currently limited to 530,000 gallons per day (mgd) and is within approximately 100,000 gallons of reaching this limit. The district needs to develop new public water wells as the current sources of the Scenic Highway are at or near capacity. According to buildout projections additional water supply will be needed. The Bourne wastewater planning committee is working with the district superintendent to find a location for a new well. They have identified a potential site for a new well but the superintendent estimates that the new well is probably four to five years from going on-line and will only supply 15% more capacity. Unlike wastewater treatment, a new water source must be found in order for the Downtown to grow. This includes additional sources in Bourne on the north side of the Canal as well as sources in other towns, such as Plymouth or Wareham.

The District is currently working within the authorized withdrawal limits associated with the Water Management Act (Act) including both registered and permitted volumes. The limits do place an operational burden on the District during periods of high demand especially within the summer months. An additional issue raised by the superintendent is the poor condition of some of the water lines. The District has worked hard to follow the policies set by the Act including conducting annual leak surveys and audits. It was successful in obtaining a 2009 DEP Water Conservation Grant, and has met the performance standards over the past two years for unaccounted water (less than 15%) and the residential per capita water use of less than 80 gallons per day or less. The district has recently raised rates to cover the expense of repairing the system and siting additional water supplies.

Transportation: Buzzards Bay faces a host of transportation issues that have disadvantaged its proper use as a downtown. Because of its proximity to the Cape Cod Canal, the Bourne Bridge, and several key regional highways, what could have been a major benefit to growth and development has instead impair the town – not because of the proximity of transportation corridors but rather because of the way in which highway systems were designed to ignore and even detract from access to the downtown. Now, however, with a redevelopment plan and a 21st century understanding of growth issues, the town stands to benefit with appropriate redesign and consideration of traffic issues.

Buzzards Bay Bypass – Arguably the foremost transportation issue in Buzzards Bay is the "Bypass," built to accommodate through traffic before the highway (Route 25) was built. The Bypass – essentially a highway severing the downtown – resulted in a complete disconnection of roads between the downtown and residences to the north. Built by the state in 1956 to alleviate congestion on Main Street when all of the traffic between Cape Cod and points west traveled through the village, it is two lanes westbound for its full length, two lanes eastbound west of the armory, and one lane to Belmont Circle. Once Route 25 was opened, the Bypass itself was largely abandoned, and now serves as Bourne's "highway to nowhere."

The right of way (ROW) varies between 80 to 110 feet. The speed limit is 40 mph and the capacity, according to CCC, is 1,100 vph. Traffic volumes were last recorded in 2005: the ADT was 9,700, the peak hour volume was 794 vehicles, and the AADT was 7,566. This represents a slight decline since the 2002 traffic counts, which measured ADT at 10,419. The bypass operates at LOS B west of St. Margaret's and LOS A the remainder of its length. Traffic volume trends indicate that there is consistently about twice as much traffic traveling westbound (toward Wareham) then eastbound. The bypass no longer carries much tourist traffic, which now uses Route 25. Seasonal counts made by CCC over the last several years indicate that Main Street still gets about 30% more traffic than the bypass during the summer months. The bypass has severed Main Street from the northern neighborhoods and has created a barrier with very few connections (a pedestrian tunnel under the road at the community center and an at-grade connection at St. Margaret's Street). The rusted chain link fence that lines the Buzzards Bay Bypass creates not only a physical barrier between the downtown area and neighborhoods but portrays an image of poor quality and disinvestment.

This now-underutilized highway, however, presents a great opportunity for redevelopment into an integrated byway that reconnects the downtown and avoids flood hazards. Most importantly, through roads that were severed and fenced can now be reopened and reconnected to both the "Byway" and the rest of the downtown. By reducing speeds and increasing connections, what was once a scar can be turned into a new gateway into downtown creating an attractive setting for cars, walkers and bicyclists and boosting investment in the Downtown.

Main Street – One lane in each direction, between the former railroad station and Memorial Circle on the west end. Travel lanes are typically 14 feet wide with unofficial turning lanes in each direction, and on-street parking is provided on most of the corridor. The speed limit is 30 mph but the excessive width of the street induces higher speeds, particularly in the eastern segment beyond Harrison Avenue where streetscape and traffic-calming improvements (i.e., the bump-outs) have not been installed. Relatively few destinations, low

density, and very wide lanes allows for a constant, high-speed thoroughfare on Main Street. Traffic moves too fast, making entry or left turns difficult and barring safe pedestrian access.

The average daily traffic (ADT) was 22,506 and the average annual daily traffic (AADT) was 19,580. This represented a slight increase over the 1996 traffic counts. Traffic volumes were generally balanced in each direction. The traffic on Main Street east of Academy Drive was last recorded in 1996 and the ADT was 13,554 while the AADT was 13,012. The level of service (LOS) at the time was calculated to be D during peak hour and C during off-peak hours, and the capacity of the street to be 1,800 vehicles per hour (vph). (The peak hour traffic in 1996 was recorded at 1,049 vph). Traffic on Main Street at the counter just west of St. Margaret's Street was last recorded in 1996. The ADT was recorded to be 14,607 with a peak flow of 1,126 vph. The AADT was recorded to be 11,504. Traffic on Main Street just west of Belmont Circle was last recorded in 2004 with an ADT of 11,318 and an AADT 8,715. Traffic was essentially equal in both directions. Under current conditions, Main Street operates at LOS B west of Harrison and LOS A the remainder of its length. It has adequate capacity to accommodate new development and redevelopment into the foreseeable future.

Other Downtown Roadways – There are 30 streets in the downtown project area (which includes both the GIZ and adjacent non-growth areas contained in the downtown). The type and function of roadways varies greatly from major arterials (such as the Scenic Highway), major collectors (such as Main Street), collectors (such as St. Margaret's Street and Cohasset Ave.), and subcollector neighborhood streets (such as Everett Road, Lafayette Ave., and Harrison Ave.). In total, there is about 7.4 miles of roadway in the project area. Other key roadways in the project area include Head of the Bay Road and Academy Drive. Each has ADTs in the range of 2,000 vehicles. St. Margaret's Street serves as a primary link between the bypass and Main Street and is a key gateway into downtown. The street is wide with limited streetscape improvements. Such improvements, as well as gateway treatment and expanded/reorganized on-street parking, should be made. Cohasset Avenue is another key secondary connector that provides internal circulation between Main Street and the bypass on the west end of downtown. It is also very wide with limited streetscape improvements. Similar improvements should be made to Cohasset Street as are proposed for St. Margaret's Street. Washington Street is a small but very important connection between Main Street and the bypass. It provides a unique opportunity to reconnect the northern neighborhoods to Main Street and the waterfront. To accomplish this, consideration should be given to realigning the intersection with Main Street to form a four-way intersection with Academy Drive, and create a four-way intersection at the bypass to reconnect the neighborhood.

Memorial Circle – Is located on the west end of Main Street forming a gateway into Buzzards Bay for traffic coming from Wareham to the west on Routes 6 and 28. It is not a welcoming entrance and the Memorial Park and monument inside the circle is essentially inaccessible (the monument is planned to be relocated to a site at Town Hall). Changes to the approaches into the circle have allowed vehicles to carry higher speeds and little indication that they are required to yield to traffic in the circle. There is also confusion as to the right of way on traffic in the circle as opposed to entering traffic.

Changes to Memorial Circle have been included in a Comprehensive Transportation Plan[5] commissioned by the Buzzards Bay Revitalization Association (BBVA). The Plan calls for a redesigned or eliminated circle create an attractive gateway into Downtown while providing safe and steady traffic flow. Reconfiguring the circle as a more conventional intersection could possibly improve the visual character of the west end and free up land in and around the circle for improved access to the park, gateway treatments, and other potential uses.

[5] Buzzards Bay Village Comprehensive Transportation Plan by Wesley Ewell and the Maguire Group 2007

Cohasset Narrows Bridge – The current bridge was built in 1921 and reconstructed in 1935. It has structurally deteriorated and is of inadequate width by current design standards. It is listed on the Massachusetts Department of Transportation Accelerated Bridge Program and scheduled to be rebuilt with an estimated cost of $15 million. As of January 19, 2011 design was not completed. The new bridge should also include a separate entrance to the western gateway to Buzzards Bay with decorative lighting and other design features. The Memorial Circle reconfiguration could possibly be done as part of this project.

Belmont Rotary – Belmont Rotary is the eastern gateway to Downtown and is the confluence of Route 25/Exit 1, the Scenic Highway (Routes 6), Old Bridge Road, Main Street, the Buzzards Bay Bypass (Routes 6 &28) and Head of the Bay Road. Downtown Buzzards Bay does not take advantage of all of the routes that converge at Belmont Circle, however, and is hurt by congestion during peak summer periods. The circle creates a physical and psychological barrier to people who might visit Main Street due to the large mix of visitor and local traffic processed through it. The circle can be confusing to visitors as they are trying to find the roadway they're seeking while crossing lanes and maneuvering around other vehicles. There are no streetscape or gateway improvements around the circle, which makes finding Main Street more difficult. These improvements, as well as possibly reconfiguring the circle to improve traffic flow and separation, as suggested in the BBVA's Comprehensive Transportation Plan, should be considered. This would increase the access and visibility of Main Street.

Route 25 and Exit Ramp – Route 25 has three lanes in each direction and a speed limit of 65 mph. The ADT in 2004 was 41,529 vehicles during the high season with an LOS of B during peak hours and C during off peak hours. The design capacity is 8,000 vph. The highway's heaviest traffic volumes are in Buzzards Bay.

Scenic Highway(Route 6) – Scenic Highway is a four-lane regional roadway connected to Route 25 by one-lane ramps that merge and split off into Belmont Circle. During the summer months these ramps carry more than 40,000 vph and much higher at peak times. The access ramps should be widened to two lanes in each direction and run directly into a T intersection at Main Street/Scenic Highway, as recommended by the BBVA's Comprehensive Transportation Plan.

Belmont Circle Roadways 1

Public Transit – Local bus service is currently provided by the GATRA[6]. The CCRTA[7] also provides a dial-a-ride service called the B-bus, and the Council on Aging runs a shuttle bus for seniors. Intercity bus service currently bypasses Buzzards Bay. Peter Pan Bus Company provides regular service between Bourne and Boston, New Bedford, Providence, and New York City, with trips originating in Woods Hole, Falmouth, and Hyannis. The Bourne stop is currently located at a convenience store on the other side of the Bourne Bridge just west of the Bourne Rotary and has only 42 spaces reserved for commuter parking.

Bourne has seen a dramatic rise in commuting population over the last few decades, but the number of commuters is likely to decline as the population ages. The public transit systems will need to be expanded to accommodate year-round demand as well as redevelopment in the Downtown. A new bus terminal located near the Route 25 interchange would provide more convenient access to all villages in Bourne, require minimal interruption of bus trips, and better serve the area north of the canal, which is the fastest growing area of town. The BBVA's Comprehensive Transportation Plan suggests that a bus terminal located within Belmont Circle could accommodate approximately 170 parking spaces which could be expanded to a parking garage in the future as necessary.

Rail – Currently, there is no passenger or commuter rail service in Buzzards Bay. The closest available commuter service is the Lakeville Station which is approximately 22 minutes from the village. MBTA is considering a plan to extend commuter rail service from its current terminus at the Middleboro/Lakeville Station through Wareham and Buzzards Bay. The Boston Regional Metropolitan Planning Organization (MPO) recently released a study of this proposed extension, which considers the costs of such service and the potential impacts on the villages in the future.

Commuter rail is generally considered an effective means of stimulating growth and economic activity as it has done recently in Kingston, Hanson, and North Plymouth. The MPO report states that parking will be the key requirement for a commuter rail, and an estimated 1,200 spaces may be required for a station in the Downtown. On the surface, this would require at least eight acres of land or a four-story garage, which would require three acres. The Vision Plan for the Downtown concept plan addresses parking through the use of a parking garage in the area of the railroad bridge.

From 1982 to 1988 Buzzards Bay was the entrance of operations of the Cape Cod and Hyannis Railroad. This company ran sightseeing trips, dinner trains, and non-commuter connector service that brought visitors from the Braintree MBTA station. As many as 800 visitors came on every trip. This service ended and the company went out of business when the state leased the tracts to Bay Colony Railroad. Amtrak passenger rail service to Buzzards Bay and Hyannis is advocated by the CCC and many local residents. It is widely believed that visitors will use the service, reducing the amount of cars on local roads.

The Railroad Bridge is owned by the ACOE[8] and, until recently, was operated by Bay Colony Rail. Bay Colony had charged a $500 fee for lowering the bridge, which deterred a lot of use by other rail service providers such as the Cape Cod Dinner Train operated by the Cape Cod Central Railroad (CCCR) out of Hyannis. In addition to the dinner train, CCCR runs scenic excursion trains and family theme trips. A subsidiary of the CCCR has recently gained control of the rails and is considering relocating the tourist trains to Buzzard Bay.

[6] The Greater Attleboro Taunton Regional Transit Authority

[7] Cape Cod Regional Transit Authority

[8] Army Corp of Engineers

Pedestrian and Bicycle Access – Pedestrian access is satisfactory in the Downtown area except for portions of Main Street that have not had the benefit of streetscape improvements. Improvements are needed along the Bypass and Belmont Circle. Most streets have adequate sidewalks or low enough travel levels to allow reasonably safe walking on the street. Three traffic control lights with pedestrian signals and a pedestrian underpass between the community center and armory enable crossing of the bypass. More than half the length of Main Street has been upgraded with new sidewalks, street trees, and brick bump-outs to define parking and crossing areas. This needs to be extended to Belmont Circle to improve pedestrian access and safety throughout Main Street. Additional improvements are needed around the two circles as there is no way for pedestrians and bicyclists to safely cross the Route 25 access ramp between Belmont Circle and the Bourne Bridge.

While bicycle traffic along the Canal trail – the bike path along the entire length of the Canal – is extensive and considered one of the most scenic bikeways in the country, travel through the village can be difficult and dangerous. Portions of Main Street have been narrowed by the recent streetscape improvements and have multiple curb cuts that pose safety issues for bike riders. The Buzzards Bay Bypass is dangerous because there is no breakdown lane and vehicles tend to travel at high speeds. The side streets in the village are relatively safe or adequate for bike travel.

Many bicycle tourists are not aware of the Canal trail coming over the Cohasset Narrows Bridge from the west and continue down Main Street to Belmont Circle. Better signage and access between Main Street and the canal are needed and should be completed in the near future. There is safe access to the Bourne Bridge through the old bridge access road between the outlets and Salvation Army, but this route is easily missed in the confusion of the circle and is not well marked. Signage is needed as an immediate step to improving bicycle safety and access throughout the village. Consideration should also be given to allowing pedestrians and bicycles to cross the Canal via the railroad bridge and a water taxi service.

Parking – Currently there is sufficient public and private parking that is well distributed throughout the downtown and conveniently available most of the time. Parking along Main Street is free and open to visitors and residents alike, and many businesses have off-street parking lots. ACOE maintains an a newly paved parking lot for visitors next to the railroad bridge, which itself is next to a state-owned paved parking lot at the railroad station for visitors to the town park.

There is a need for additional parking during special events such as the scallop festival, and the MMA currently needs additional parking for students and visitors. The potential future addition of passenger and commuter rail and an intermodal center (with intercity bus service) in the Downtown will also require more parking. A park-and-ride lot for commuters may be needed as well. The state armory site off the bypass may be the best site for this type of facility.

Public and private parking will have to be expanded and managed as the downtown area is further redeveloped, although the parking requirements adopted as part of the zoning change for downtown are a marked improvement, and consistent with smart growth principles. In particular, the new zoning allows for reduced parking requirements, and allows the parking to be provided within the building. Items such as the Shared Parking Reduction Factor, Off-Site and On-Street Parking Credit, and Traffic Circulation Improvement and Reduction Incentives all encourage reduced parking and shared access as a means of blending automobile, streetscape and pedestrian uses.

Electric, Gas and Cable: The downtown is faced with several electrical and communications challenges. Public gas is supplied to Buzzards Bay by Algonquin, and cable is provided by Comcast. Electric power is supplied to the downtown area by NSTAR which has an office and electrical transmission substation on Perry Avenue. Current capacity is sufficient for the

project area. Yet much of the telecommunications infrastructure is on telephone poles throughout the town. The poles create an unsightly and sometimes logistically inconvenient infrastructure. Overhead utility lines are located on the south side of Main Street and all side streets in the project area. The utility poles and lines along Main Street are particularly obtrusive due to the limited streetscape treatments and mature trees. One of the key challenges in the development process is to improve the public environment to attract private investment, and streetscape design is a key factor. Overhead power lines on Main Street should be examined carefully to determine options to reduce their aesthetic impact. Options may include burying the lines underground, relocating lines behind buildings, or buffering lines with mature and well maintained street trees. In addition, there are limitations on electric power given the current infrastructure that need to be addressed.

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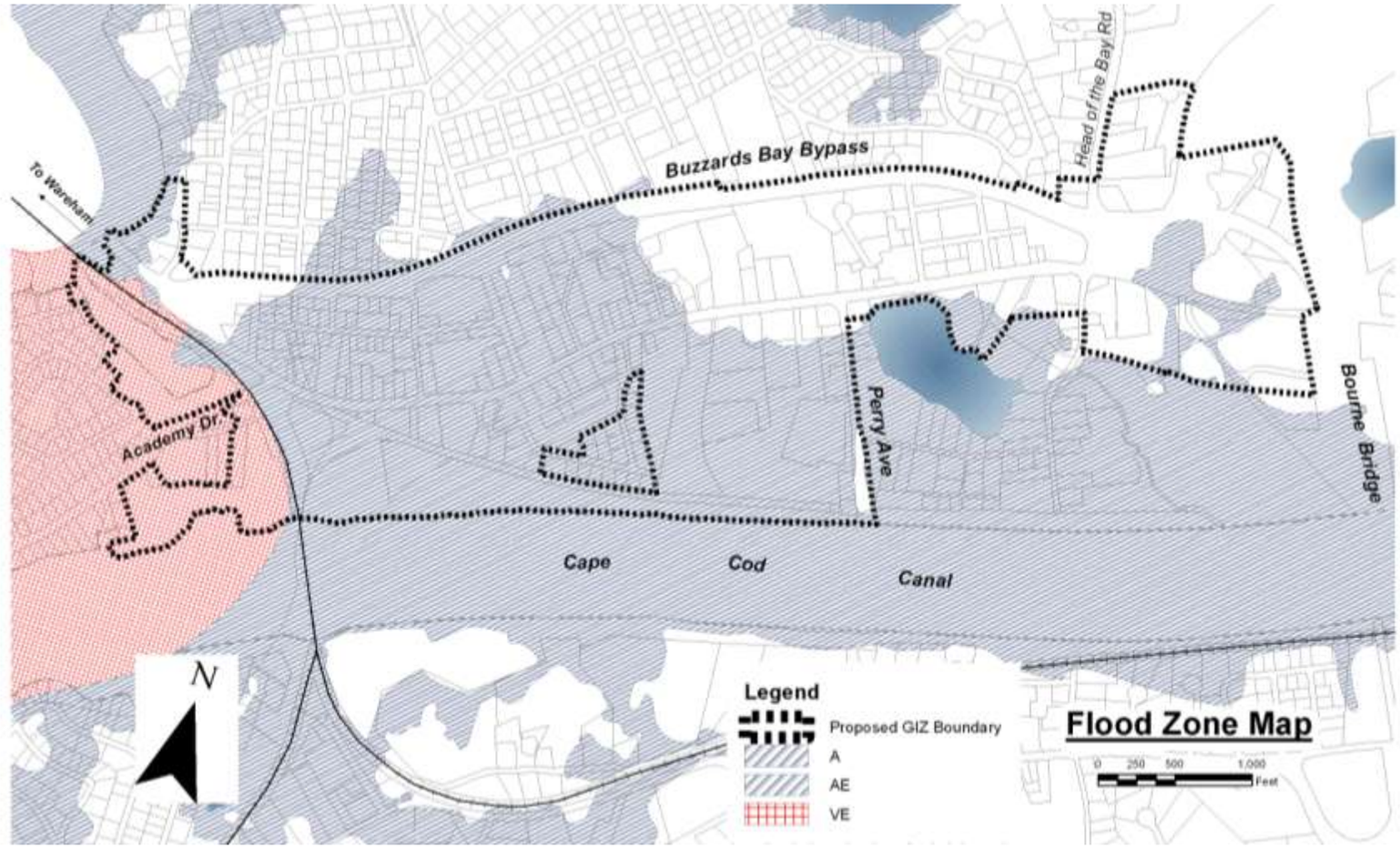
V. ENVIRONMENTAL ATTRIBUTES

Flood Zone: A large portion of the downtown is in the A Zone although the west end particularly Taylor's Point is in the Velocity Zone (V-Zone)[9]. As defined by the Massachusetts Office of Coastal Management, the Velocity Zone indicates areas "where wave action and high velocity water can cause structural damage in the 100-year floodplain." The A-Zone makes up the rest of the 100-year floodplain that would be inundated with water during a 100-year storm event but experiences conditions less severe than the Velocity Zone. The A-Zone covers the majority of the western side of Main Street up to the bypass between the Cohasset Narrows Bridge and the north side of Harrison Avenue. Note that a significant portion of the eastern end of Main Street from Belmont Circle to Perry Avenue that is slated for redevelopment is completely outside of the flood zone, and may be more appropriate for development. Nevertheless, the flood zone is a major redevelopment challenge in the downtown.



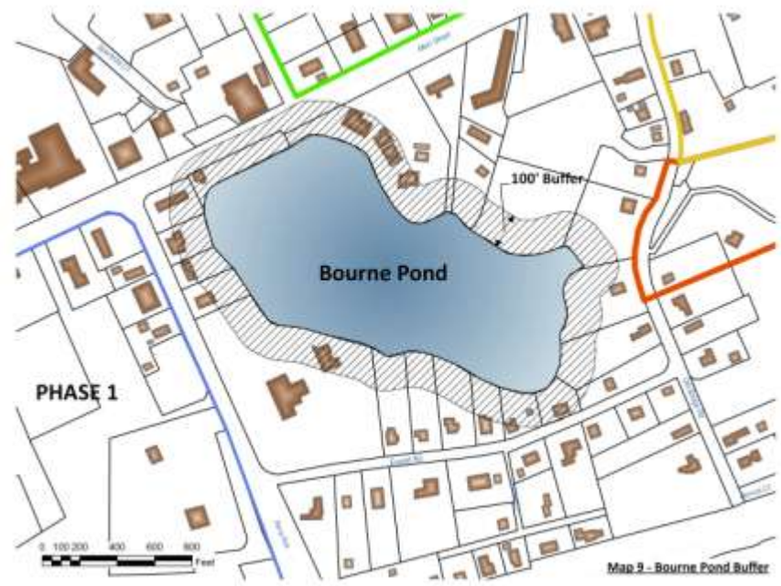
Flood zones entail a certain economic challenge as well, because new and redeveloped structures must meet flood zone standards, which include being constructed with certain structural components at or above flood levels. Financially, this may include increased construction costs, greater difficulty in construction financing, and higher flood insurance rates. The Town of Bourne Zoning Bylaw (Section 3100) currently requires that the lowest floor level (called the "Lowest Floor Elevation" in flood-zone terminology) of any newly built residential structure in the floodplain be elevated to not less than the base 100-year flood elevation. In addition to regulations, for the purposes

[9] 100 – year floodplain

of financing and insurance, the first habitable floor level of any development must be above the 100-year floodplain. In practical terms, this would indicate that the "ground level" of a newly built structure in the floodplain be elevated to a level of approximately five feet above flood level. This constraint may significantly hamper many commercial developments (i.e., retail, personal services, food and entertainment, and certain office uses) which typically are located on and preferably at street-level rather than elevated or second floors. Additionally, construction costs and increasing insurance costs would most likely outweigh potential rents and market potential in general. This is particularly the case with smaller, home-grown entrepreneurial retail stores that are desired by the community.

The Cape Cod Commission has produced a Model Floodplain District Bylaw specifically tailored to the needs of Cape Cod towns. The model regulations, however, only permit outdoor recreation, wildlife management, agriculture/forestry, and "uses lawfully existing prior to the enactment of the bylaw" (Section 05.1). The bylaw suggests several implementation tools to achieve compliance with the model regulations that may be at odds with the community vision for redevelopment. Part of the reason for this may be that much of the flood zone in the Downtown is an urban setting, drastically different from flood zones in other parts of the Cape. Therefore, it is important that the town and the Commission work together to incorporate the results of the floodplain construction analysis into the local regulations, and come up with creative ways to allow the right kind of redevelopment in the flood zone while also working to protect the most sensitive and flood-prone areas.

Consultant Kate Kennen[10] produced a seminal document on the flood zone that identifies particular challenges as well as mitigation techniques. Section 4 of the document recommends design solutions to mitigate flood hazards, it also describes the nature and extent of the flood zone, the nature and construction characteristics of properties within the flood zone, how those properties are affected by floods, and what can be done in terms of construction techniques to improve both those properties and new development. Specifically, the document summarizes the following:



- Parcels located in a SLOSH Zone (Sea Lake and Overland Surges from Hurricanes Zone) as determined by the Army Corps of Engineers SLOSH atlas and mapped using GIS by the Cape Cod Commission, have the potential for flooding from surge inundation that may occur from wind and pressure forces of hurricanes in XF and XO zones (areas just outside of flood zones). FEMA does not require any flood mitigation and these parcels have the lowest insurance premiums.
- Vacant parcels have the greatest flexibility because they can be protected from development or developed according to stringent flood design standards. The higher the lowest floor elevation is <u>above</u> the Design Flood Elevation (DFE), the lower the insurance premium.
- For parcels containing buildings <u>below</u> DFE, insurance is costly. Elevating building's LFE (Lowest Floor Elevation) above DFE or flood proofing commercial structures reduces insurance costs.
- Some buildings, including historic structures, may not be able to be moved or elevated. This is particularly

[10] Plan "Study of Flood Hazards Mitigation and Design for the Main Street Business District – December 7, 2007

true of masonry structures. Structures that are desired for preservation should be flood-proofed to the extent possible, including filling basements and waterproofing foundations and lower sections.

Wetlands and Pond Buffers: Local Conservation Commission Wetlands Protection bylaws requires a 50-foot no build for projects located near wetland resources, including wetlands and surface waters. There are isolated wetlands located in the town park adjacent to the Canal and north of Summer Street next to the town's canal crossing property. There is also small wetland areas located between the town marina and railroad tracks, along the northern shoreline of the Taylor's Point Neighborhood, within Belmont Circle, and along the north side of the Route 25 ramp. These wetlands were probably created by drainage alternatives associated with roadway construction and improvements over the years. The most significant wetland in the Downtown area is located north and south of Old Bridge Road which has a direct feed into Bourne Pond. None of these wetland areas pose significant deterrents to future development, as development is generally steered away from these sites. The only surface water in the Downtown area besides the Cape Cod Canal is the Bourne Pond an underutilized resource in terms of passive recreational use. This natural resource is surrounded by structures that existed long before the 50 foot no build buffer. The State and the local Conservation Commission requires all projects within 100-feet of a wetland resource or those located within the floodplain to be reviewed for possible impacts.

Stormwater Management:

Currently stormwater is collected by a series of catch basins and underground storm pipes. Individual properties are required to infiltrate their own storm water into the ground on their property, through the use of underground infiltration structures, rain gardens and swales. Roof run off is recommended to be separated from other impervious surface run off through the use of downspouts directly discharging into drywells.

Stormwater is separated from wastewater, and low-flow fixtures are encouraged. As the downtown is redeveloped, large areas may be covered with impervious surfaces such as parking lots and buildings. Runoff from these can be rapid and can overwhelm stormwater systems with high concentrations of pollutants such as oils, salts, and grease into ground water and nearby surface waters. These issues need to be considered as redevelopment occurs recommendations should be codified by inclusion in design standards and the zoning bylaw.

Separation and reuse of "grey water" should also be considered as a way of reducing sewage demand and increasing recycling of water flow within the downtown.
The new downtown zoning bylaw requires planting areas to serve as stormwater treatment areas "rain gardens", they are to be designed to be slightly depressed to capture stormwater run-off. The use of roof gardens is also recommended.

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VI. CAPITAL FACILITIES

The Town of Bourne conducted a municipal facilities study[11]. The Town understands that municipal buildings and facilities are the most enduring and expensive capital items for any community. Their location, design and use define the town's ability to provide efficient and effective service to all residents and businesses. The choices for school sizes and types, emergency and maintenance service facilities, and buildings for normal government functions all come with long term implications to the growth of the community and its financial demands. The facilities plan shows how Bourne could institute a program to build needed replacements and expansions to meet local needs for school, public works, emergency services, and other government buildings, by setting priorities for the facilities so that phasing and budget impacts can be planned for the next ten to twenty years.

In addition, as the town continues its plan to revitalize the Downtown, it will require new or expanded infrastructure. Capital asset investment in Bourne has kept pace with population growth for some services, but is clearly inadequate for others. Expanded wastewater treatment in Buzzards Bay is included as a major goal outlined in the Town's Local Comprehensive Plan (LCP) and a goal adopted by the Board of Selectmen. The Town recognizes the need for the development of new infrastructure and has listed the following policies in the LCP.

- Development of new infrastructure, whether by public agencies or private entities.
- Development and redevelopment shall pay its fair share of the cost of building, buying or expanding capital facilities and assets required to serve the project.
- Public investments in infrastructure and facilities shall reinforce the traditional character and village development patterns of the town.

Wastewater:

Wastewater disposal has lagged well behind demand. Expansion of Bourne's sewerage facilities in Buzzards Bay has become a pressing issue as the Town aggressively pursues its revitalization plans. Wastewater is the key to redevelopment and corporate investment in the Downtown. The Wastewater Advisory Committee has been reactivated with a charge to answer the question; "What is the capacity needed to increase the commercial aspect of the Downtown, while balancing the environmental concerns, water supply issues and financial impacts. Town-owned land off Scenic Highway has been targeted for a wastewater treatment plant; however the parcel is also in an area scrutinized by the Buzzards Bay Water District for a potential new wellhead. The cost and who will pay for the needed infrastructure improvements is the big question. As stated above new development and redevelopment projects could cover the cost of the new or expanded facilities and infrastructure. There are several ways this can be done: the developers can build and manage the facilities; they can build the facilities and deed them to the town; or they can pay the town to build and manage the facilities.

[11] Bourne Municipal Facilities Plan, Cecil Group, March 10, 2009

Stormwater:

Bourne has wonderful water resources, and has taken steps to protect them, but pollution remains a major concern. The most important next step will be to contain and treat that pollution. New ways of treating sewage, by both individual systems and community facilities, will be needed. Public education needs to be increased to reduce the adverse affects of development, recreational boating, and street runoff. Bourne should also consider initiating a program to buy or otherwise protect properties within identified critical resource areas to prevent further degradation of those waters.

The Town of Bourne has appointed a Phase II Stormwater Management Community Oversight Group to oversee the implementation of the EPA Stormwater Phase II. The Town has completed a self-assessment and is working towards full compliance Phase II Stormwater regulations. The Town has been working with a consultant to complete a Comprehensive Stormwater/Erosion Control Bylaw, it has obtained consensus among staff of the various boards involved as to the approach, and is fine-tuning a semi-final draft of the bylaw. Key members of the Phase II Staff Working Group have continued efforts to assist in the formulation and implementation of Programs, Regulations and By-laws with Boards and Commissions. The Town has accomplished many of the objectives of the Stormwater Phase II Program, for example:

a. Procuring a vacuum truck to clean storm drains, infiltration systems and the sanitary sewer collection system.
b. Working closely with the Buzzards Bay National Estuary Program and constructing infiltration systems largely with grant funds.
c. The Department of Public Works (DPW) has cleaned beaches on a weekly basis in season with a mechanical beach rake.
d. The Pollution Task Force consisting of dedicated citizens has identified sources of pollution and seeks relief by working with regional groups, seeking funds and overseeing the formulation of corrective action.
e. The Integrated Solid Waste Management Department (ISWM) has initiated and financially supported curbside recycling for residents, supports a recycling drop-off center for residents, accepts recyclables from most area communities, provides four (4) hazardous waste collections per year through the County Extension, receives waste oil and paint at the drop-off center, composts leaves and makes free compost available to citizens, offers composting bins and rainbarrels, and promotes these activities with a yearly newsletter mailed to each household (8,600).
f. Citizens volunteer time to assist environmental groups such as Baywatch and Buzzards Bay Action Committee.
g. The Bourne Department of Natural Resources operates 3 boat pumpout facilities, one stationary and two vessels.
h. The Town has an animal waste pickup bylaw and a bylaw banning dogs from beaches.
i. The Bourne Board of Health has adopted Regulations to prohibit illicit discharges.

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VII. PLANNED DEVELOPMENT: CHALLENGES & RECOMMENDATIONS

Downtown Buzzards Bay represents one of the greatest development opportunities in southern New England. It also presents significant challenges. There are certain factors limiting the amount of development that can occur, its placement, and its timing. Those factors are subject to change when the town is ready to make a strong financial and technical commitment to smart growth and resource protection.

Zoning: The zoning in downtown Buzzards Bay is currently "form-based code" – an advanced zoning system that focuses on the urban form of a downtown rather than isolated uses. In short, the zoning allows for and even requires mixed-use development, multi-story buildings, higher overall density, and "build-to" lines to ensure buildings are closer to the sidewalk and street. The zoning does not extend to all of the downtown; there are some neighborhoods that are generally built out as residential or other growth for which no changes are sought. Overall, the Main Street corridor, the area north of Main Street to the Bypass, and some areas south of Main Street are now eligible for significant increases in on-site density, height, and mix of uses. As a general description, zoning in downtown Buzzards Bay includes the following:

- Buildings up to four stories, with retail on the first two floors (or parking on the first floor and retail on the second, if in a flood zone) and residential above; taller buildings allowed by special permit.
- Dense development with parking located inside of buildings, on the street, or potentially in parking garages, and reduced and shared parking overall.
- By-right uses for those things that make a downtown healthy, such as townhouses and apartments, mixed-use developments, and retail.
- Denial of non-urban uses, such as automobile salvage yards and car washes.

More detailed information can be obtained by examining the Section 2800 of the Bourne Zoning Bylaw - Downtown District Zoning for details.

Although the zoning is suitable for current plans, there are significant barriers in certain areas of Downtown. Flood zones are predominant toward the western end of Main Street, and future development will have to deal with flood-zone standards, including significant elevation of new structures. On the other hand, some areas within the flood zone have long been traditional centers of commerce and civic activity, and their continuance will be important to the character of the town. Therefore, the Town should seek a grant funding program where funds are given to properties where redevelopment is wanted and flood hazards can be mitigated.

Recommended Actions:

- Revisit design solutions and recommendations from the Flood Zone study.
- Initiate a consultant structure-by-structure cost benefit analysis of flood proofing of existing structures.
- Preserve more flood-prone areas for less growth-intensive civic uses, such as fields, parks and water-dependent facilities.

Wastewater Treatment: The single largest factor limiting development in the downtown is the absence of wastewater collection and treatment systems to accommodate growth. The existing wastewater treatment system in place serves the development that is already there, and has some limited reserve capacity for additional development. The wastewater system for Buzzards Bay connects to the treatment plant in Wareham, and is capable of accommodating and additional 70,000 gallons per day of wastewater load.

The Tighe and Bond report studied four different scenarios for wastewater treatment plant expansion. Alternatives "1A" and "1B" involved centralized wastewater treatment, both with and without expansion of the existing wastewater treatment plant at the Massachusetts Maritime Academy (MMA). The other two scenarios (2A and 2B) involved satellite treatment both with and without the MMA. Probable costs were developed for each scenario. Other cost and non-cost factors, such as compliance with state MEPA law and the Cape Cod Commission Act, were also considered

The results of the alternative comparisons were presented to the Bourne Financial Development Corporation (BFDC) and Bourne Wastewater Advisory Committee in a series of meetings in June and July 2007. On August 7, 2007 the Board of Sewer Commissioners passed a motion to endorse the Committee's recommendation to accept the initial phase of "Alternative 1B" as the recommended plan and proceed with development of an implementation plan and submission of an ENF.

Based on the need for long-term wastewater treatment costs, legal issues and other factors, it was determined that the least expensive and most predictable option was to develop a centralized wastewater treatment facility on land adjacent to the Scenic Highway (Alternative 1B). This assumes a 1,259,000 gpd flow rate at buildout for all sewered areas north of the Canal (assuming existing capacity of 200,000 gpd to the Wareham plant remains in place). The anticipated timeline until operation of the plant to serve Areas 1 and 2 is approximately eight years at a cost of approximately $47 million.

The recommended plan consists of construction of Phase 1 within the Tighe and Bond report only. This phase includes providing sewer service to Study Areas 1 (central Buzzards Bay and Hideaway Village to the north) and 2 (north Buzzards Bay/Buttermilk Bay, excluding Hideaway Village). The recommended plan also includes construction of a centralized wastewater treatment facility and groundwater discharge system. Based on the screening performed for this project, the Town-owned parcel on Scenic Highway is the preferred location for these facilities.

Alternative 1B is the least expensive alternative on a total project cost basis, provides the greatest flexibility for expansion starting at the initial phase, and consolidates the wastewater treatment facility and groundwater discharge into a single area, making permitting more straightforward and operation and maintenance of the facilities easier.

There are many benefits of implementing Phase 1 of Alternative 1B of the wastewater plan, including:

- Solving the imperative need for additional wastewater capacity in the Buzzards Bay Area;
- Providing additional wastewater infrastructure to allow for economic redevelopment of the Main Street area of Buzzards Bay;
- Providing for compliance with likely upcoming TMDL regulations to limit and reduce nitrogen loads to Buttermilk Bay and Little Buttermilk Bay;
- Providing for future expansion to other areas north of Cape Cod Canal, including surrounding municipalities;

- Allowing for continued flexibility for future wastewater management considerations for Bourne south of the Cape Cod Canal;
- Recommending utilization of town-owned parcel;
- Minimizing construction impacts;
- Creating a plan that is compatible with many funding and financing sources.

Recommended Actions:

- Implement wastewater management plan as described above.

Water Supply: Although there may be additional supplies in the town of Bourne, or available to the town of Bourne from other places, the existing supply is also near capacity. It is estimated that there is enough remaining supply for an increase in growth-related demand of approximately 15%, although the ecological effects of that increase are uncertain. Clearly, in order for significant additional growth to be undertaken, expansion of the town's water supply, as well as improvements in water efficiency, must be undertaken.

The District does have concerns with the ability to locate, approve and permit an additional source of supply to guarantee the residents, businesses, tourists and other users an ample supply of safe, clean drinking water. To that end, preliminary efforts have begun to locating an additional well to supplement the necessary capacity for future needs. The exploratory consideration is within District property off of Bournedale Road adjacent to Route 25. Reports generated in the 1980's identified the area as a potential site and also suggested it be constructed within the next 20 years. Having gone beyond that time frame, the District is hopeful that a new source can be located, tested, permitted and constructed within the next five years.

An area that the District has little control over is a permit requirement that identifies retrofitting all municipal buildings with water saving devices by January 1, 2012. This is an area that can be encouraged by the greater Buzzards Bay public/private organizations. The District supports overall water conservation efforts and the need for conservative rates. Rates will be reviewed; the last rate increase was in 1992. The town has also become a promotional partner in Water Sense with EPA in supporting the use of equipment that has been approved to support water conservation and green technology.

Recommended Actions:

- Coordinate with Buzzards Bay Water District to ensure a long-term drinking water supply for buildout in Buzzards Bay.
- Identify additional areas for conservation and water use efficiency.

Transportation (including parking): There are a number of transportation issues, already described above, that must be established prior to and/or with development in the downtown. The key change to the downtown is redesigning the Belmont Circle rotary, both to reduce conflicts between different traffic flows and to enhance the entrance to the downtown. The circle in its existing pattern causes traffic congestion, traffic conflicts and safety concerns. Traffic trying to access Route 25 North or coming off of 25 South to access Route 6 East must negotiate with traffic entering and exiting Buzzards Bay from all directions. In addition to these safety and congestion concerns, the circle acts as a psychological barrier to the village,

making it difficult to get downtown from all eastern points. Combined with land-use changes, redesigning Belmont Circle will create a sense of "destination" in Buzzards Bay rather than a sense of "pass-through." Wesley Ewell and the Maguire Group developed a comprehensive transportation plan for Buzzards Bay that outlines key actions for changing Belmont Circle. In short, the proposed pattern widens the ramps to and from Route 25 to two lanes and establishes to a two-way circulatory pattern that integrates traffic to and from Buzzards Bay with through traffic accessing the highways. This also enhances both visibility of and access to the downtown through a "gateway" district and controlled traffic signals.
Other important changes include parking (in the form of garages and under-building parking), on-street parking, narrowing of streetscapes to create a feeling of arrival, and increasing the presence of the train and transit services. Most of all, increasing the density and economic diversity of the downtown slows and moderates traffic, establishing Buzzards Bay as a place to go to rather than go through.

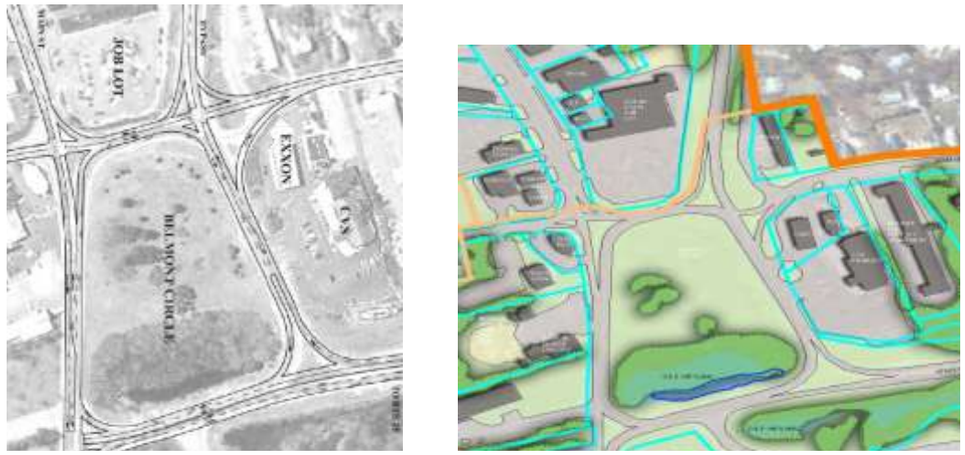

Figure 1 -Before and After: The picture Belmont Circle on the right depicts redesigned traffic patterns, which allow two-way transportation, controlled intersections and easy access to Main Street.

Recommended Actions:

- Redesign Belmont Circle with two-way signalized roads consistent with the Comprehensive Transportation Plan written by Ewell-Maguire. Consider an intermodal transportation center within Belmont Circle with parking and facilities for transit (local and regional), commuters, and taxis.
- Reconfigure Memorial Circle as a conventional intersection.
- Reconfigure Main Street, Washington Avenue and Academy Drive into a four-way signalized intersection to improve traffic flows and access to the waterfront area.
- Redesign the Bypass as a boulevard with a bicycle lane, and improved access to downtown.
- Construct a bicycle path the length of the bypass, improve bicycle connections between the Bypass bicycle path, the Canal path, Main Street, and the Bourne Bridge.
- Work in partnership with developers to build parking facilities, especially in the vicinity of the old railroad station , as well as off Academy Drive to serve tourist rail and downtown development.
- Design and install entrance treatments Eastern and Western Gateways

Flood Zone: Although the flood zone does not run through the entire downtown, it does affect a significant portion of the area targeted for redevelopment, particularly on the western end of town. Not only must the town identify state-of-the-art flood zone management techniques and implement them, but also the town must consider how development potential could be reduced in the most sensitive areas of the flood zone where appropriate and "transferred" to other less flood-prone or more structurally protected parts of town. This will require some innovative zoning, such as TDR, as well as other techniques to get the desired development in the most appropriate places.

As stated earlier in this report, consideration should be given to 1) locating new growth outside of the flood zone as part of a coherent urban plan, 2) identifying the kinds of uses that make economic sense within the least affected areas of the flood zone, 3) relocating existing or planned development from the flood zone to non-flood areas through Transferrable Development Rights (TDR), and 4) locating civic uses, seasonal uses and other low-impact types of development in the flood zone, thus extending the public realm without putting people, structures or investments at risk.

In many cases, some buildings, including historic structures, may not be able to be moved or elevated because of the type of construction, usually masonry or stone. In such cases, thought needs to be given to either removing the structure permanently, retrofitting the ground area to waterproof the foundation and lower sections, and removing or filling basements. In the case of historic or other civic structures, alternative and more flexible uses should be considered.

Finally, there are a number of federal programs that would not only give the town a better standing in terms of compliance but also improve planning and reduce investment risk. Bourne should seek to go beyond federal standards and Cape Cod Commission standards to address sea-level rise and even consider transferring development potential out of the flood zone through TDR and other creative land-use tools.

Stormwater Management: Stormwater management is a vitally important element of downtown renewal. Fortunately, the most modern stormwater management techniques can also be part of a downtown beautification plan. Low-Impact Development (LID) techniques should be integrated into the design of the downtown through zoning and design standards. Approaches such as pervious pavement, planters connected to gutter drains, vegetated swales and curbside landscaping can not only treat and retain stormwater before it reaches structural systems but also improve the aesthetics of the streetscape using low-maintenance landscaping.

Fortunately for Bourne, Main Street is excessively wide in many locations. The need to treat stormwater in a way that doesn't add to infrastructure and inordinate expense also presents an opportunity for beautification and renewal. Rain gardens, planters, and other techniques can also be a vitally important streetscape renewal and visual benefit to the town. Streets can be narrowed, traffic slowed, and pedestrian access increased through these applications.

Recommended Actions: Narrow Main Street with rain gardens and other stormwater structures along the street. This would not only be an effective means of addressing stormwater management but would also add to beautification of the streetscape and moderate traffic flow.

- Implement Phase II Stormwater Best Management Practices.
- See Design Guidelines for additional information.

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VIII. OFFSETS

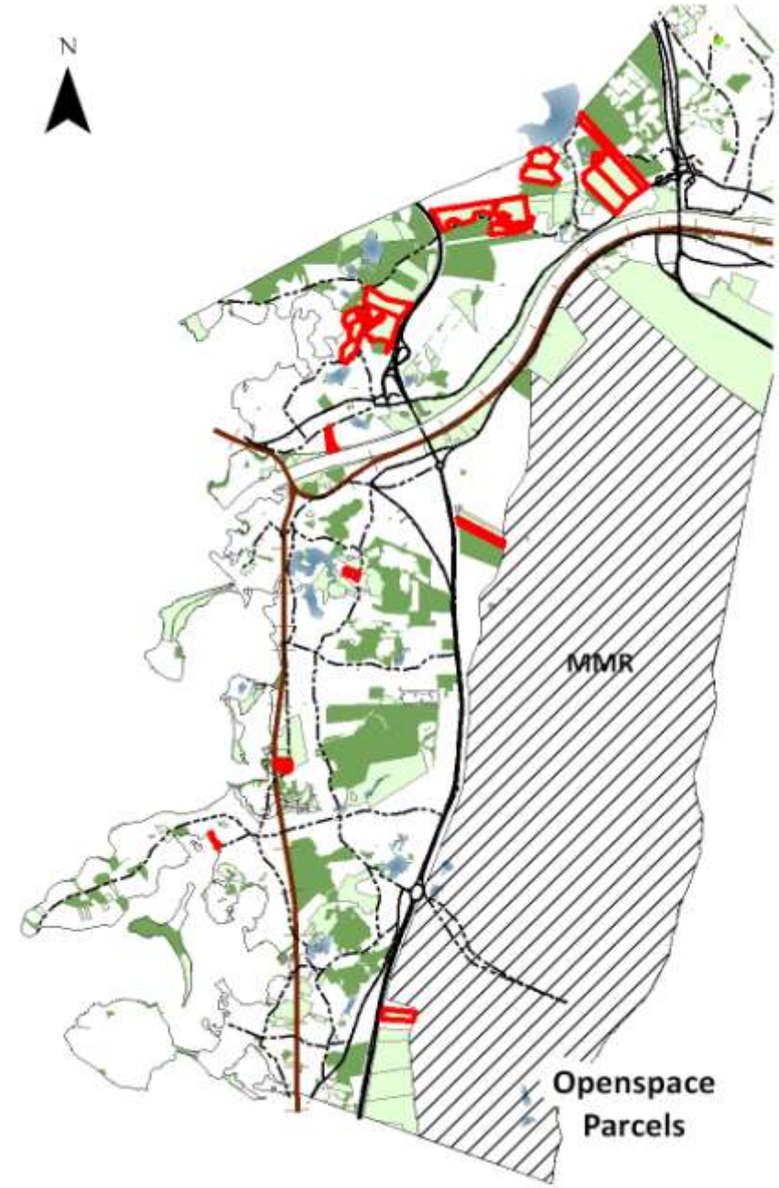
Areas Proposed as Open Space/Reduced Development Zones Outside the GIZ

The Open Space graphic shown to the right illustrates the protection efforts over the years within the Town of Bourne. The bold red outlined parcels shows what has yielded during the past 10 years through Land Bank, the Community Preservation Act, and gifts. That number is very significant, involving the protection of 507 acres.

Table 1 -

Summary of Bourne's Open Space Lands

Level of Protection	Number of Parcels	Total Acres
Perpetuity	228	3,225
Limited	262	1,542
Temporary	72	967
TOTAL	562	5,733



Increases in the density of Downtown need to be considered as part of an overall development approach that reduces development potential in other areas by some commensurate measure. There are a few areas in Bourne where such development potential still exists. The reduction of development potential could take place as the result of land preservation (past or present), density reductions, DRI threshold reduction and undevelopment. In addition, preservation efforts that have taken place within the past five (5) years could be used as an offset to development increases in Buzzards Bay.

Including what has been done within the recent past, the town proposes the following preservation and development reduction approaches as its offset for development in Buzzards Bay.

RESIDENTIAL OFFSETS

Properties Identified as future Offsets – Open Space Preservation: In November 2011 the Town Planner presented a list of parcels to the Open Space Committee as potential acquisitions that could qualify as offsets for the Growth Incentive Zone. The Open Space Committee reviewed the list of parcels, Table A represents those parcels approved by the Open Space Committee as potential acquisitions. The Open Space Committee has begun a campaign to acquire the parcels by sending a mailing to all property owners requesting that they contact the committee to discuss the possible purchase. As those negotiations become final Table will be updated. Properties will be either removed or moved to the list of purchased properties.

Table A -Parcels identified for future credits (Conditional Offsets)

Location	*Fiscal year purchase*	*Total SF*	*Total Acres*	*Zoning Minimum lot size at the time of Purchase*	*Total upland*	*Total wetland*	*Potential Residential units*	*In Resource Protection Area (RPA)*	*In RPA & Adjacent to protected open Space*	*In DCPC*	***Offset multiplier***	***Offset units***
Church Lane	Pending	578041	13.27	40000/ 80000	2.80	10.50	2	Yes	Yes	Yes	4	8
Sol Joseph Rd	Pending	509652	11.70	80000	11.70	0.00	6	Yes	No	Yes	4	24
Hunters Brook Rd	Pending	477127	10.95	40000	10.62	0.33	11	No	No	No	2	22
Aptuxcet Rd	Pending	120661	2.77	40000	2.77	0.00	2	No	No	No	2	4
Old Bridge Rd	Pending	168194	3.86	40000	3.71	0.15	3	No	No	No	2	6
Monument Neck Rd	Pending	179903	4.13	40000	4.13	0.00	4	No	No	No	2	8
Monument Neck Rd	Pending	274428	6.30	40000	3.15	3.15	3	No	No	No	2	6
Rocky Point Rd	Pending	285754	6.56	40000	1.32	5.24	6	No	No	No	2	12
County Rd	Pending	247856	5.69	40000	5.16	0.53	5	No	No	No	2	10
County Rd	Pending	237838	5.46	40000	5.43	0.03	5	No	No	No	2	10
County Rd	Pending	215622	4.95	40000	3.10	1.85	3	No	No	No	2	6
County Rd	Pending	423403	9.72	40000	9.72	0.00	10	No	No	No	2	20
Thom Ave	Pending	13591	0.31	40000	0.31	0.00	1	No	No	No	2	2
County Rd	Pending	306662	7.04	40000	7.04	0.00	7	No	No	No	2	14
Rice Ave	Pending	759686	17.44	40000	17.00	0.44	18	No	No	No	2	36
County Rd	Pending	319730	7.34	40000	7.19	0.15	7	No	No	No	2	14
County Rd	Pending	181210	4.16	40000	4.16	0.00	4	No	No	No	2	8
						Total	**97**					**210**

Open space preservation offsets are based on those properties purchased within the past five calendar years (see Table B).

Table B - Open space purchases or restrictions within the last 5 years

Map_Parcel	*Name of Property*	*Location*	*Fiscal year purchase*	*Total SF*	*Total Acres*	*Total Area Restricted SF*	*Acres*	*Zoning Minimum lot size at the time of Purchase*	*Total upland*	*Total wetland*	*Potential Residential units*	*In Resource Protection Area (RPA)*	*In RPA & Adjacent to protected open Space*	*In DCPC*	***Offset multiplier***	***Offset units***
5_1	Sandy Pond	Sandy Pond Rd	2008	839,706	19.28			80,000 sf	19.28	0.00	10	Yes	Yes	Yes	4	40
15_6	Henshaw	Head of the Bay Rd	2008	457,380	10.50			80,000 sf	9.62	0.88	5	Yes	Yes	No	4	20
27_51.01	Eliz Bourne	County Rd	2006	164,657	3.78			40,000 sf	2.26	1.52	3	No	No	No	2	6
43.1_1	Clarke	Cove Ln	2010	59,677	1.37			40,000 sf	0.41	0.96	0	No	No	No	2	0
10_34	Jaspers	Scenic Highway	2007 CR Restriction	91,476	2.10	31929	0.73	20,000 sf	0.73	0.04	1	No	No	Yes	4	4
	Gilder*	Gilder Rd	2011	24,829	0.57			40,000 sf**	0.57	0.09	1	No	No	No	2	2
26.2_147	BCT/Ribich	Back River Rd	12/30/2010	91,476	2.10			R40 - 40,000 sf	1.40	0.70	2	No	No	No	2	4
51.1_29	BCT/Guild	Redbrook Harbor Rd	2/6/2006	100,188	2.30			R40 - 40,000 sf	2.30	0.00	2	No	No	No	2	4
55_33	BCT/Cataumet Gardens	Route 28A	8/21/2007	371,131	8.52			R40 - 40,000 sf	8.52	0.00	8	No	No	No	2	16
23.4_45	BCT/Ribich	Back River Rd	12/30/2010	57,064	1.31			R40 - 40,000 sf	1.31	0.00	1	No	No	No	2	2
23.4_46	BCT/Ribich	Back River Rd	12/30/2010	72,745	1.67			R40 - 40,000 sf	1.67	0.00	1	No	No	No	2	2
48_59.2	BCT/Mayhew	County Rd	5/17/2006	158,994	3.65			R40 - 40,000 sf	3.65	0.00	2	No	No	No	2	4
37.4_45	BCT/WIJNTJES GEERT &	Beverly Rd	12/6/2011 CR	270,508	6.21			R40- 40,000 sf	5.61	0.60	6	No	No	No	2	12
											42					**116**

Table C- Town Parcels acquired through tax title and transferred to Conservation Commission

Map_Parcel	*Name of Property*	*Location*	*Fiscal year purchase*	*Total SF*	*Total Acres*	*Zoning Minimum lot size at the time of Purchase*	*Total upland*	*Total wetland*	*Potential Residential units*	*In Resource Protection Area (RPA)*	*In RPA & Adjacent to protected open Space*	*In DCPC*	***Offset multiplier***	***Offset units***
07.4_58	Tax title property transferred to Con Com	SACHEM DR	2011	23,630	0.54	40000	0.54	0	1	No	No	No	2	2
19.3_122	Tax title property transferred to Con Com	STUDIO DR	2011	10,275	0.24	40000	0	0.24	0	No	No	No	2	0
19.3_123	Tax title property transferred to Con Com	VAN BUMMEL RD	2011	10,298	0.24	40000	0.03	0.21	0	No	No	No	2	0
23.4_15	Tax title property transferred to Con Com	MONUMENT NECK aka BELL RD	2011	8,000	0.18	40000	0.18	0	1	No	No	No	2	2
26.1_34	Tax title property transferred to Con Com	LAMONT RD	2011	9,213	0.212	40000	0.21	0	1	No	No	No	2	2
38.3_359	Tax title property transferred to Con Com	SHORE RD	2011	6,273	0.144	40000	0.14	0	1	No	No	No	2	2
38.3_375	Tax title property transferred to Con Com	SHORE RD	2011	6,403	0.147	40000	0.15	0	1	No	No	No	2	2
43.3_18	Tax title property transferred to Con Com	CIRCUIT AVE	2011	2,570	0.06	40000	0	0.06	0	No	No	No	2	0
44.1_146	Tax title property transferred to Con Com	RICE AVE	2011	4,966	0.11	40000	0.11	0	0	No	No	No	2	0
44.1_146.01	Tax title property transferred to Con Com	DOLLINS RD	2011	14,000	0.32	40000	0.32	0	1		No		2	2
									6					**12**

Table D - Commercial Offsets														
Map_Parcel	*Name of Property*	*Location*	*Fiscal year purchased*	*Total SF*	*Total Acres*	*Zoning Minimum lot size at the time of Purchase*	*Total upland ac.*	*Total wetland ac.*	*Potential Commercial Area*	*In Resource Protection Area (RPA)*	*In RPA & Adjacent to protected open Space*	*In DCPC*	***Offset multiplier***	***Offset (sq.ft.)***
52_3	BCT/Ramos	Route 28A	6/30/2006	130,680	3.00	B2 - 20,000 sf	1.05	1.95		No	No	No	1	45,738
28_1	BCT/Angus	MacArthur Blvd	3/26/2010	217,800	5.00	B3 - 20,000 sf	5.00	0.00		No	No	No	1	217,800
28_18	BCT/Angus	MacArthur Blvd	3/26/2010	714,384	16.40	B3 - 20,000 sf	15.20	1.20		No	No	No	1	662,112
54_56.1	BCT/Cataumet Gardens	Route 28A	8/21/2007	41,818	0.96	B2 - 20,000 sf	0.96	0.00		No	No	No	1	41,818
				1,104,682	25.36		22.21	3.15						967,468

Potential Commercial Offsets

There are areas outside of downtown that are zoned for commercial use, where the design and location are contrary to the interests of compact growth. In such areas, attempts should be made to rid the area of commercial zoning, either by converting it to residential zoning or by placing the land in a permanent conservation restriction. That commercial zoning could then be used as a credit for increased commercial development in the downtown.

As an alternative, commercial land could simply be converted to residential use through a change in zoning. Unless the landowner agrees, however, to protect the land from development through sale to the town or conservation restriction, the land should also be counted as an increase in residential use.

Potential Commercial Offset 1 – B2 Business to Residential: Propose changing commercial designation to residential. Currently BUSINESS B-2 is zoned to accommodate general business development in areas serviced by major traffic arteries, and where conflict with residential development will be substantial. Also allowed in B2 is residential as permitted in an R40 District.. Therefore, residential use is allowed at 40,000 square foot lots with 125 feet of frontage.

The proposed area is approximately 53.7 acres and is currently developed as residential. Changing the zoning or down zoning will ensure that the area will remain residential in the future

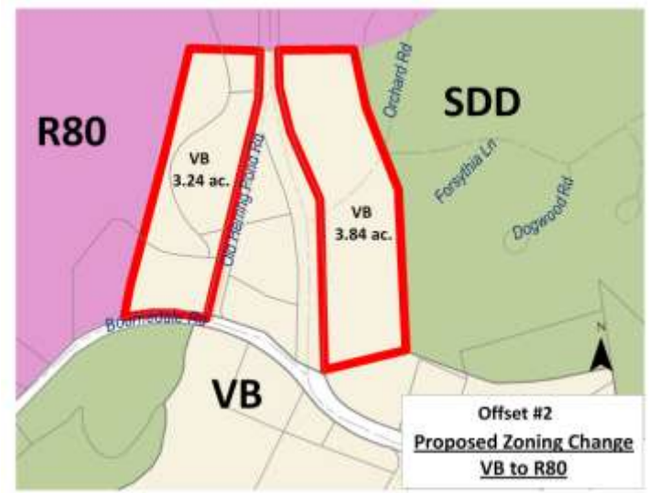
[12]Offset 1 – 53.7 acres – 60 Parcels
Open Space – 28.5 acres
Single Family dwellings - 55

not

Potential Commercial Offset 2 – VB Village Business to Residential R80: Propose changing commercial designation to residential. Currently VILLAGE BUSINESS is zoned to provide for village-oriented business compatible with small scale environs and nearby residences.

The proposed area is approximately 7.08 acres and is currently undeveloped or used as open space. Changing the zoning or down zoning will ensure that the area will remain open space in the future

[13]Offset 1 – 7.08 acres total – 5 Parcels
Open Space – 3.24 acres Single Family dwellings - 0

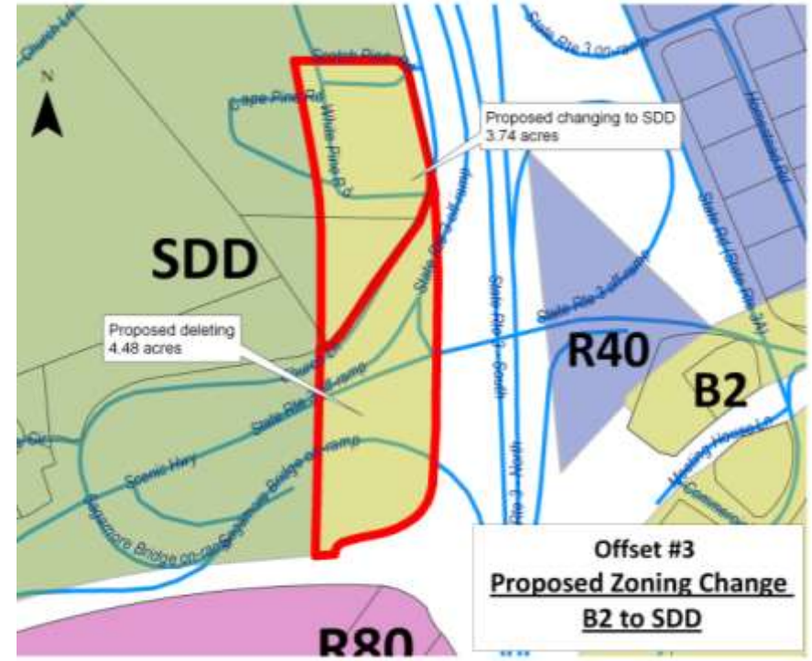


[12] The following calculations were obtained from the Town's GIS

[13] The following calculations were obtained from the Town's GIS

Potential Commercial Offset 3 – B2 Business to SDD: Propose changing commercial designation to residential. Currently VILLAGE BUSINESS is zoned to provide for village-oriented business compatible with small scale environs and nearby residences.

The proposed area is approximately 8.22 acres and is currently undeveloped or used as open space. Changing the zoning or down zoning will ensure that the area will remain open space in the future



Potential Commercial Offsets				
Offset Number	**Name**	**Current Zoning**	**Proposed Zoning**	**Total Acres**
1	North Sagamore	B2	R40	**53.7**
2	Bournedale	VB	R80	**7.08**
3	Sagamore	B2	SDD	**8.22**
Total				**69.0**

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IX. BUILDOUT ANALYSIS OF POTENTIAL FUTURE GROWTH IN BUZZARDS BAY

The buildout analysis is particularly complicated based on the complexity of the zoning and the unique nature of the downtown. A number of factors have been considered, all of which require certain assumptions about the zoning. In other words, while zoning might theoretically allow for a certain maximum density, it is realistically controlled by many factors, such as parcel size, owner preference, flood-zone restrictions, economic investment limitations, timing, socioeconomic factors, and other influences, in addition to the maximum allowable density under zoning. Therefore, a set of assumptions needs to be established in order for the buildout to proceed in a realistic way.

Detailed form-based code can be found in Section 2800 of the Bourne Zoning Bylaws, adopted October 2008. (See Table DTD-2 in Appendix for Dimensional Standards) Carefully using the new zoning as a guide, a "buildout spreadsheet" was developed using certain assumptions about development space, needs and requirements (see Figure 1 – "Buildout Calculator"). The buildout attached is for the proposed development across from Town Hall that has sewer capacity reserved by the Sewer Commissioners, and assumes a buildout based on the fact that there will be first-floor parking and/or building elevation in the flood zone. While there are many important details contained in the zoning, key factors controlling the shape and appearance of downtown can be identified in the following.

a. **Density:** Then density is controlled by a maximum Floor-Area Ratio (FAR) of 2:1. Regardless of the form of development, the 2:1 ratio serves as the limit on development, absent of a special permit.

b. **Height:** Zoning allows up to four stories by right. Combined with parking requirements, the 2:1 FAR generally allows for four-story buildings taking up roughly half of the development site, although shorter buildings may be preferred in some cases. The zoning permits buildings with business and retail on the first two floors and residential above. An third/fourth floor setback of 30 feet is required for buildings fronting Main Street.

c. **Flood Zone:** Flood zone requires that there be no commercial or residential uses on the first floor. In this case, parking is allowed as a use as the first floor of the building. In such cases, parking would be on the first floor, commercial on the second floor, and residential on the third and fourth floors.

d. **Residential Density:** Allowable residential density is based on total lot square footage. 3,500 square feet is required per unit for market-rate housing. If 10% or more of the housing is provided as affordable, the amount of lot square footage per unit required shrinks to 2,500 square feet. This would allow roughly 17 units per acre. Note also that the amount of square feet per unit can vary greatly depending on a number of other factors, such as parking requirements, setbacks, assumptions about hallways and utilities, etc. In the buildout calculation, the actual square footage per unit comes to around 1,331 square feet – remarkably close to the statistical average of 1,200 square feet for a typical 2-bedroom apartment. Of course, there will be a small percentage of 1-bedroom and 3-bedroom apartments, but largely 2-bedroom units. Therefore, the buildout is based on an average of 2 bedrooms per unit. The actual square footage of any unit will vary depending upon the mix of units and market conditions.

e. Maximum Impervious Surface: The total amount of impervious surface on a lot cannot exceed 80%, including all forms of building and pavement. In addition, there is a projected impervious surface calculation of 12% for such things as walks, roads, and drives, which is subtracted from that 80% to then calculate land available for development or parking.

f. Parking: A fairly complicated but very clear method is used to calculate the required parking, based on the requirements of the zoning. This varies based on the number and type of residential units and the type of commercial development (high vs. low parking demand). The number of spaces needed is reduced by virtue of the co-location of different uses (called the "Shared Parking Reduction Factor"). This number is calculated in the buildout spreadsheet.

g. Wastewater: The amount of wastewater produced is a result of both Department of Environmental Protection (DEP) presumptions and relatively conservative expectations of commercial uses. A previous wastewater study done by the town predicts an average of 50 gallons per day per 1,000 square feet of commercial space, based upon an estimation of 88% low-water use and 12% high-water use. This buildout uses an estimate of roughly 75 gallons per day per 1,000 square feet of commercial space, based upon an estimation of 66% low-water use and 34% high-water use. See additional information starting on page 17 under Infrastructure and Services.

According to a discussion with the sewer inspector approximately 63,000 gpd is available for the entire sewered area of Buzzards Bay. 23,000 gpd has been reserved for the proposed project across from Town Hall.

Under the buildout analysis developed for the downtown (see "Buildout Calculator"), unless configured for less wastewater generation (i.e., fewer residences, less than full density, etc.). The granted relief would allow for the following:

- Total wastewater discharge to the existing wastewater collection system of no more than 63,000 gallons per day
- Compliance with all state and federal guidelines on flood zone management, at a minimum.

SCENARIO 1

Insert Variable

Step 1: Wastewater Availability

	wastewater in gallons per day(gpd)
Total Wastewater Capacity	**200,000**
Current Wastewater Usage	
Hide-a-way Village	(10,000)
Summer Peak Allocation	(32,000)
Balance of Buzzards Bay	(85,000)
	73,000
Expected future Uses outside GIZ	
Hide-a-way Village	(10,000)
	63,000
GIZ Phase One	
Assisted Living Facility	(23,000)
Other Phase 1 Development	(40,000)
Remaining WW Capacity	-

Step 2: Translating Wastewater Capacity to a Development Threshold

Total Phase 1 Capacity	63,000

Assumptions	Wastewater Generation	gpd	SF/bedrooms
Commercial*	75 gpd/1000 SF	75	1000
Residential	110 gpd/bedroom	110	2
Assisted Living	150 gpd/bedroom	150	1

** Commercial that included doctor's offices and/or restaurants would have higher average flows*

** Wastewater generation based on MA Title V standards*

Calculation	Share of Phase 1 Development	gpd	Threshold	
Commercial	31.746%	20,000	266,666	SF
Residential	31.746%	20,000	91	Units
Assisted Living	36.508%	23,000	153	Units

Step 3: Calculating the Commercial Offsets

	SF	Acres	
Commercial Threshold	266,666	6.12	<< total commercial requested converted to acres
Offset Multiplier:	Open Space in DCPC	2.5	<< MAX multiplier is filled in as default
Net Offset Required		2.45	

Step 4: Calculating the Residential Offsets

		Units	
Residential Threshold		244.24	<<# of residential requested units in total
Offset Multiplier:	Open Space in DCPC	4	<< MAX multiplier is filled in as default
Net Offset Required		61.06	<<units to offset required to meet requested

SCENARIO 2

Insert Variable

Step 1: Wastewater Availability

	wastewater in gallons per day(gpd)
Total Wastewater Capacity	**200,000**
Current Wastewater Usage	
Hide-a-way Village	(10,000)
Summer Peak Allocation	(32,000)
Balance of Buzzards Bay	(85,000)
	73,000
Expected future Uses outside GIZ	
Hide-a-way Village	(10,000)
	63,000
GIZ Phase One	
Assisted Living Facility	(23,000)
Other Phase 1 Development	(40,000)
Remaining WW Capacity	-

Step 2: Translating Wastewater Capacity to a Development Threshold

Total Phase 1 Capacity	63,000

Assumptions	Wastewater Generation	gpd	SF/bedrooms
Commercial*	75 gpd/1000 SF	75	1000
Residential	110 gpd/bedroom	110	2
Assisted Living	150 gpd/bedroom	150	1

Calculation	Share of Phase 1 Development	gpd	Threshold	
Commercial	50.00%	31,500	420,000	SF
Residential	50.00%	31,500	143	Units
Assisted Living	0.00%	-	-	Units

** Commercial Development that included doctor's offices and/or restaurants would have higher average flows*

Step 3: Calculating the Offsets

	SF	Acres
Commercial Threshold	266,666	6.12

Commercial Offset		Acres
Gross Offset Required		6.12
Offset Multiplier:	Open Space in DCPC	2.5
Net Offset Required		2.45

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Buildout Calculator: Buzzards Bay

(name of parcel)	Bryon/Groundwater
(map/parcel #s)	See Map & Block to the right
Flood Zone [1]	AE El. 13

	Units (as noted)	Square Feet		
Parcel Size (acres):	19.6	853,776		
Max. Lot Coverage @ 80% (required)		683,021		
Open Space@ 20% (required)		170,755		
Minus other impervious areas (5%)		34,151		
= Area Available for Buildings and parking		**648,870**		
FAR: 2:1 Gross Flr Area (GFA)	2	1,707,552		
Building Height (max 52 feet 4 stories)	4			
Building Base Area (maximum)		**426,888**		
Area left for parking		221,982		
Potential Floor Uses*:				
[1] 1st Flr Parking (Structured-under) potential		426,888		
2nd Flr Commercial Office potential		426,888		
3rd & 4th Residential (multi-family) potential		853,776		
GFA		**1,707,552**		
Residential Units (Potential)	Potential #		**# Units**	**Sq. Ft. req.**

Table 1 - Proposed GIZ Phase I Area Existing Characteristics

All Located within the Downtown Core

Lot Coverage 80% maximum by right (impervious)

Building Height: 4 stories max (52 ft.)

Lot Area: 3500 sf.

FAR = 2:1 (by right)

	MAP	BLOCK	LOCNO	LOCST	Acres	Square Feet	Total Existing Building Area	Potential Building Area	Description	Located in Flood Zone (AE El. 13
1	24.1	7	0	PERRY AVE	0.41	17,860	0		DEVELOPABLE LAND	Y
2	24.1	1	0	MAIN ST	1.82	79,279	0		DEVELOPABLE COMMERCIAL	Y
3	24.1	69	0	MAIN ST	2.16	94,090	0		DEVELOPABLE COMMERCIAL	Y
4	24.1	6	0	MAIN ST	9.18	399,881	0		DEVELOPABLE COMMERCIAL	Y
5	24.1	3	21	PERRY AVE	0.62	27,007	0		DEVELOPABLE COMMERCIAL	Y
6	24.1	5	25	PERRY AVE	3.5	152,460	6,198		OTHR STORAGE, WAREHSE	Y
7	23.2	120.01	218	MAIN ST	1.91	83,200	0		DEVELOPABLE COMMERCIAL	Y
8					19.60	853,776	6,198			

*Assumptions: 1 st floor parking, 2nd floor Office, 3rd & 4th Floors residential.

1000 sq.ft. = 2 bedroom

800 sq.ft. - 1 bedroom

10 units plus req. 10% affordable

3500 sf/unit/lot area market

2500 sf/unit/lot area affordable

Parking reduction is allowed by a Special Permit

Market:			220	768,398
Affordable: 10%-2500sf		24.39	24	60,000
TOTAL 3500 sq.ft. of lot area/unit	**244**		**244**	**828,398**

[2] Assume a 1/3 split for unit type one bedrm two bedrm

Parking Spaces			**# Sp Req.**	**Sq. Ft. req.**
Residential				
Multi-family (1.5 sp/unit)			365	
Guest Spaces (1 sp/10 units)			37	
Total Residential Spaces:			**402**	
Commercial				
Office (Medical) 4 sp/1000 sq.ft.		427	1708	
Total # of spaces req. (inside & outside)			**2,109**	
Outdoor Area left for parking	221,982			
Parking Space (outdoor) 420 sf.			529	221,982
Structured parking (indoor) 300 sf.			1,581	474,261

Wastewater

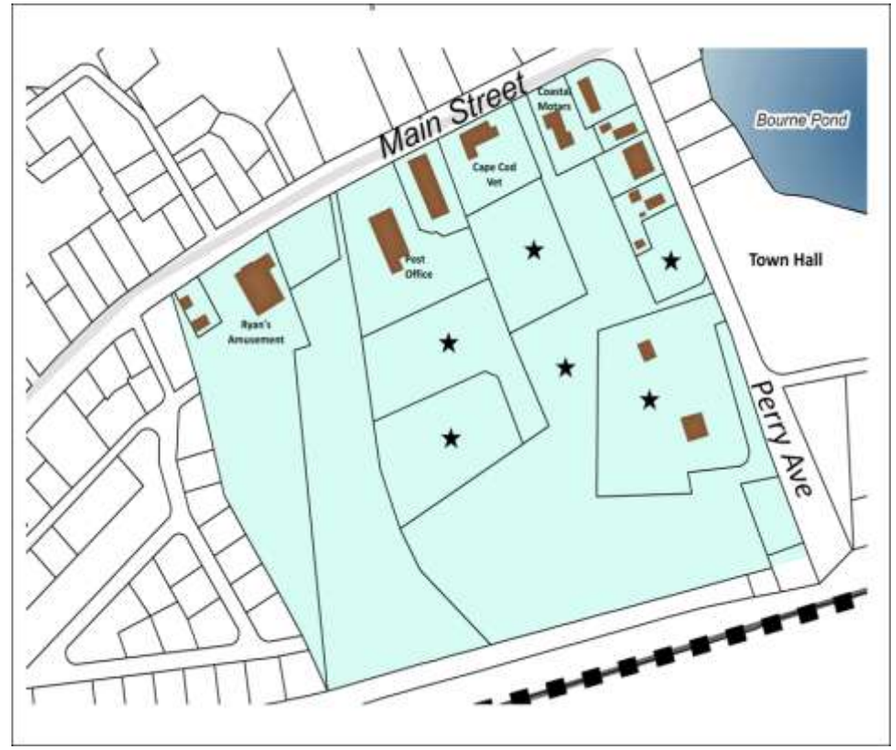
	# of Units	**Total WW**	
Residential 110 gpd/bedroom [2] Total	244	**26,790**	gpd
2 bedrooms	161	17,681	gpd
1 Bedroom	83	9,108	gpd
Commercial (Office) 75 gpd/1000	427	**32,017**	gpd
Wastewater Loading (gallons per day)			0.07575
TOTAL WASTEWATER	**58,806**		

* Assumes commercial sf available on site is all used.

** Apartments will vary in size; outside deck space, setbacks not included.

*** Under Title V, commercial load doubles; total load =

**** Assumes .66 low ww load, .34 high ww load.



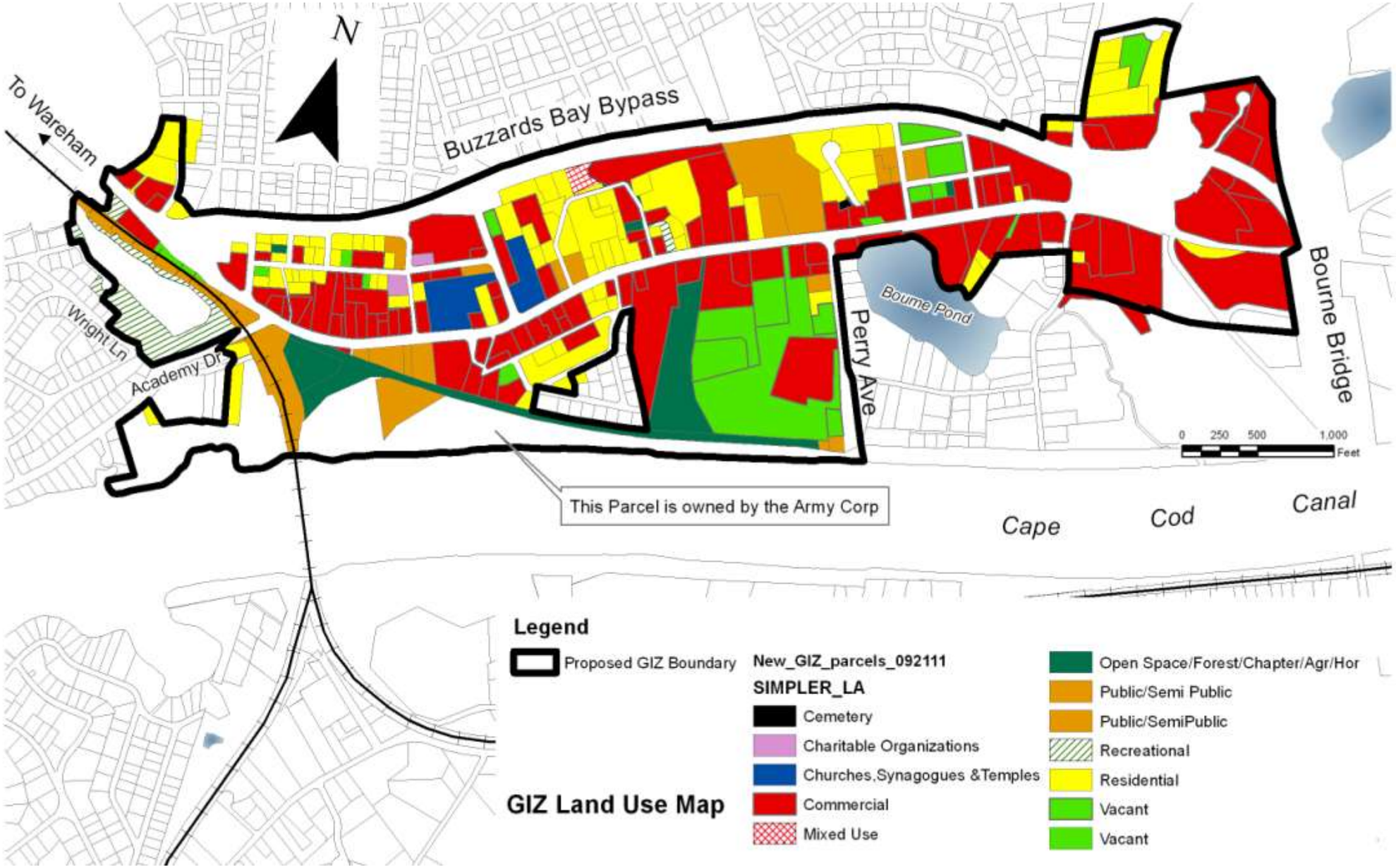
X. APPENDIX

TABLE DTD-2: SITE AND BUILDING DIMENSIONAL STANDARDS FOR THE DOWNTOWN DISTRICT (establishes the lot, bulk, height, and setback ranges)		
STANDARD	**BY RIGHT**	**WITH SP BY PB**
BASE RESIDENTIAL DENSITY		
Market Rate Housing	1 unit/3,500 s.f. of Lot Area	1 unit/2,000 s.f. of Lot Area
Market Income Housing (Section 2842)	1 unit/2,500 s.f. of Lot Area	1 unit/1,500 s.f. of Lot Area
BUILDING HEIGHT		
Principal Building	4 stories maximum (52 feet)	Maximum height to be determined by the SPGA under criteria in Section 2827 and 2838
	2 Stories Minimum (22 feet)	1 story minimum with 15 feet height required for front façade by SPGA under criteria in Section 2827 and 2838
Outbuilding	2 stories maximum	Not Applicable
Building Height Special Requirements	On Primary Streets (Figure DTD-2), buildings that have residential uses facing the primary street on the first floor shall raise the first finished floor at least 2 feet above sidewalk grade.	
	On Primary Streets, stories at the sidewalk level in non-residential use shall be no less than 12 feet in height from the finished floor to finished ceiling	
	A single tower on a building defined as a habitable portions of a building above the roof level with a foot print less than 240 square feet, shall not be subject to height limits.	
	Basements that emerge less than 4 feet from finished grade or attics not exceeding 4 feet at the knee wall shall not constitute an additional story.	

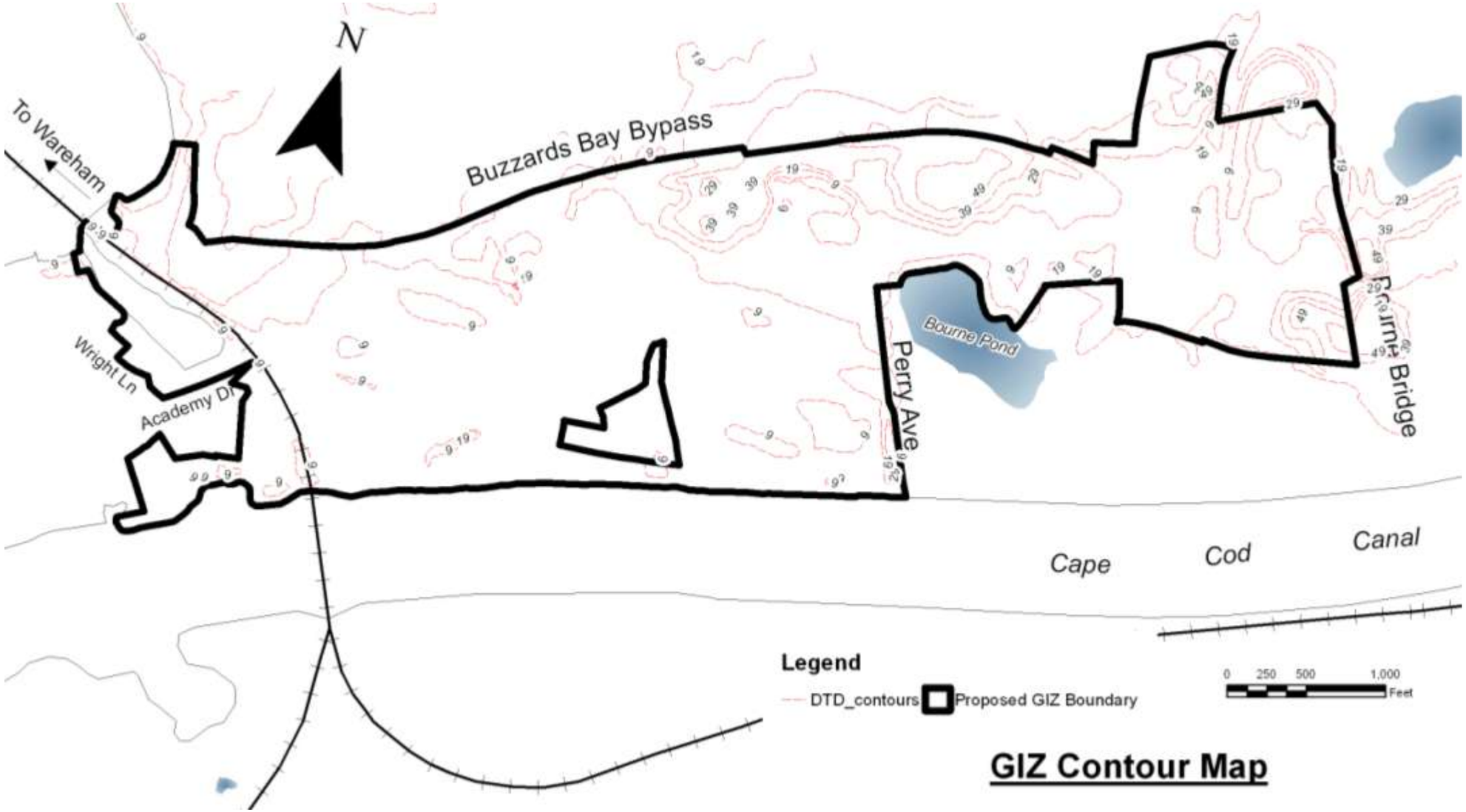
LOT OCCUPATION		
Lot Area	3,500 square feet	No minimum
Lot Width	40 feet minimum	25 feet minimum
	180 feet maximum	500 feet maximum
Lot Coverage	80% maximum	100% maximum
Floor Area Ratio (FAR)	2:1 maximum	3:1 maximum
BUILDING SETBACK		
Primary/Front	0 feet minimum 15 feet maximum	30 feet maximum under criteria in Section 2835
Front Setback Exceptions	The maximum front yard setback only applies to portions of a building meeting the minimum façade requirement. On Primary Street intersections, the maximum setback for chamfered corners shall be 20 feet from the lot corner to the center of the building façade that faces the lot corner. All structures fronting the Buzzards Bay Bypass shall be set back at least 10 feet from the property line. All structures on Main Street between Perry Avenue and Belmont Circle shall be set back at least 10 feet from the right of way line.	

Primary/Side	0 feet minimum	Not Applicable
	24 feet maximum	No minimum
Primary/Rear	10 feet minimum	No minimum
Outbuilding/Front	20 feet minimum	10 feet minimum
Outbuilding/Side and Rear	5 feet minimum	No Minimum

Map I

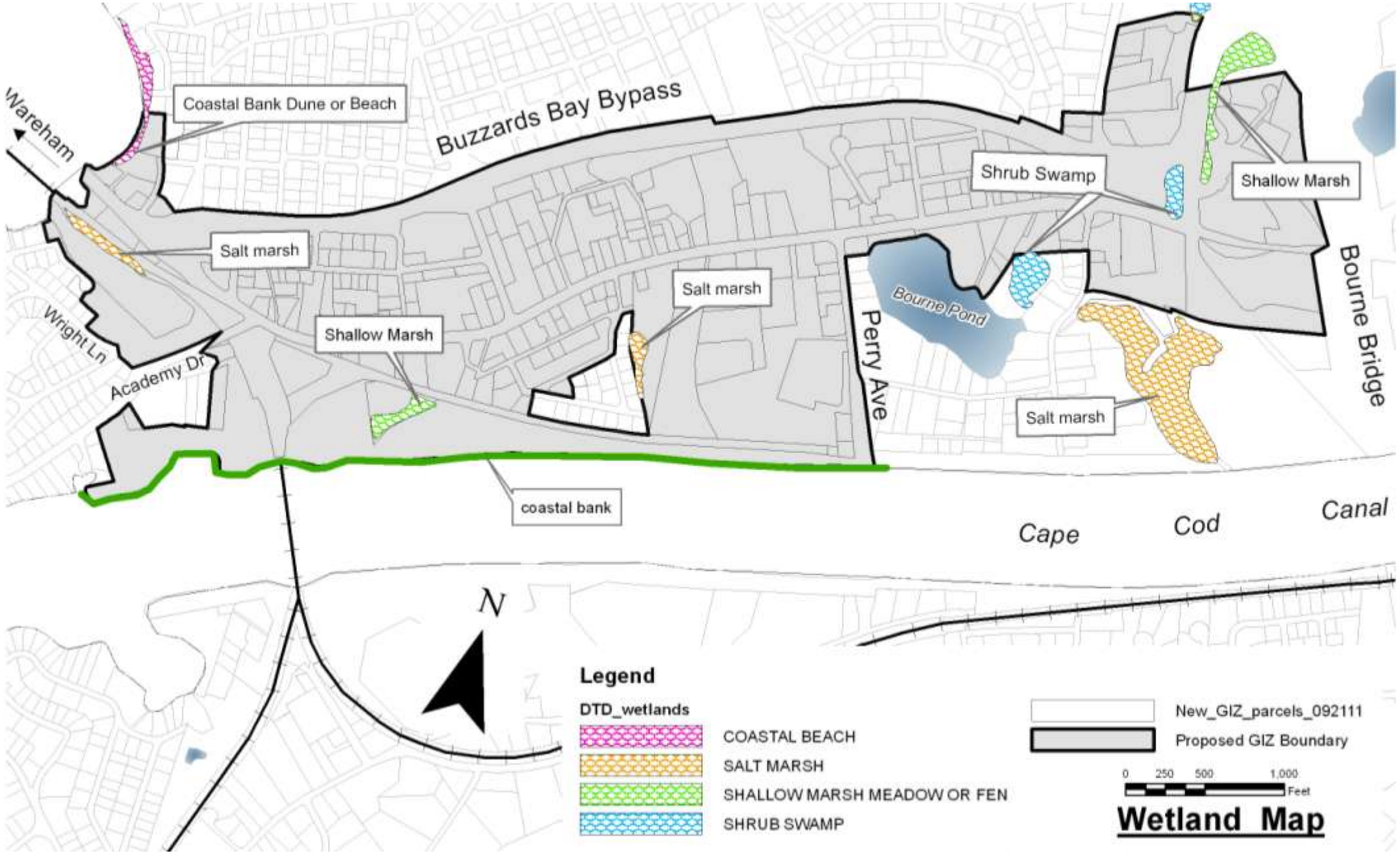

N
To Wareham
Buzzards Bay Bypass
Wright Ln
Academy Dr
Perry Ave
Bourne Pond
Bourne Bridge
0 250 500 1,000
Feet
This Parcel is owned by the Army Corp
Cape Cod Canal
Legend
Proposed GIZ Boundary
New_GIZ_parcels_092111
SIMPLER_LA
Cemetery
Charitable Organizations
Churches,Synagogues &Temples
Commercial
Mixed Use
Open Space/Forest/Chapter/Agr/Hor
Public/Semi Public
Public/SemiPublic
Recreational
Residential
Vacant
Vacant
GIZ Land Use Map

Map II

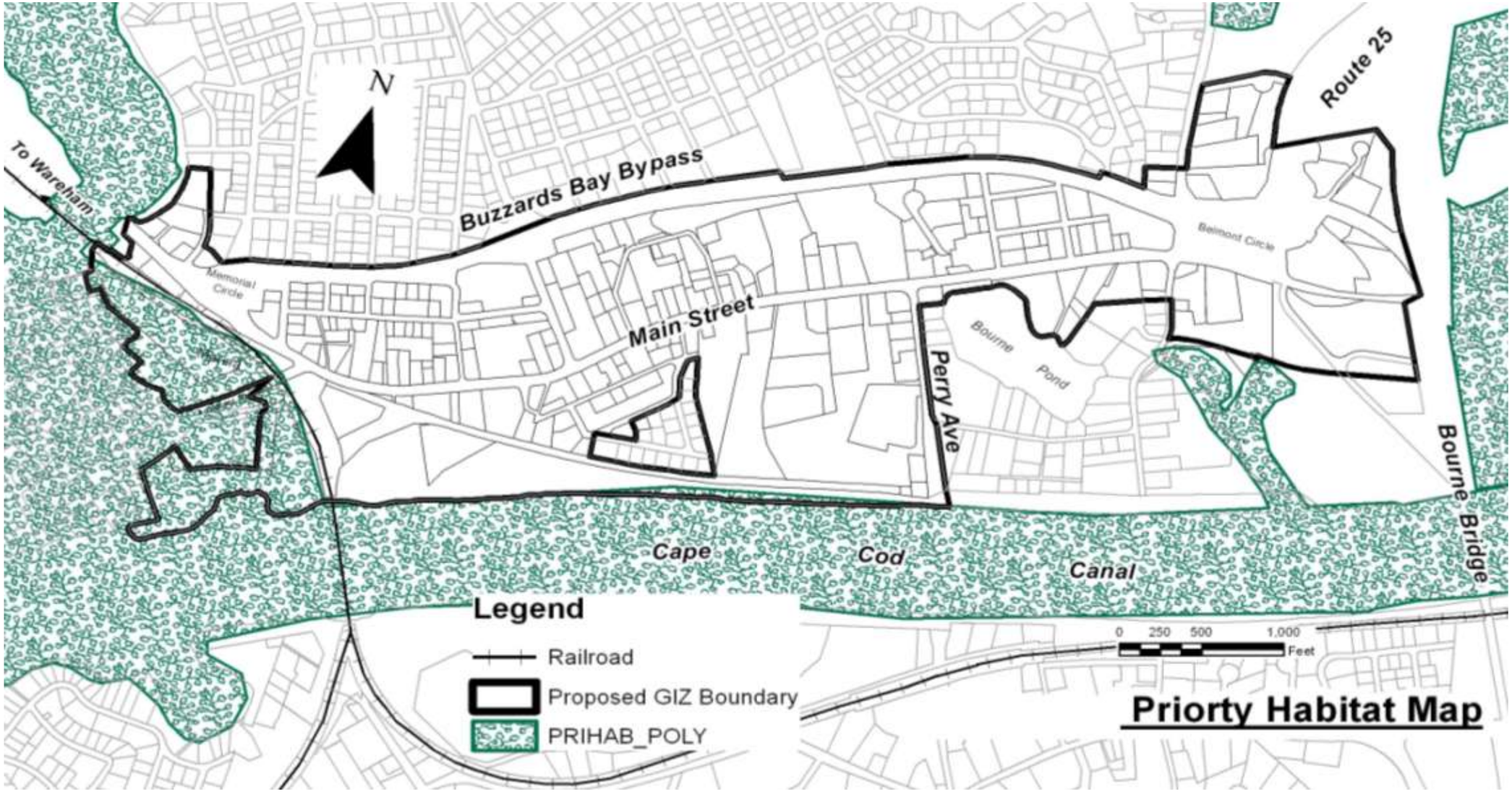


GIZ Contour Map

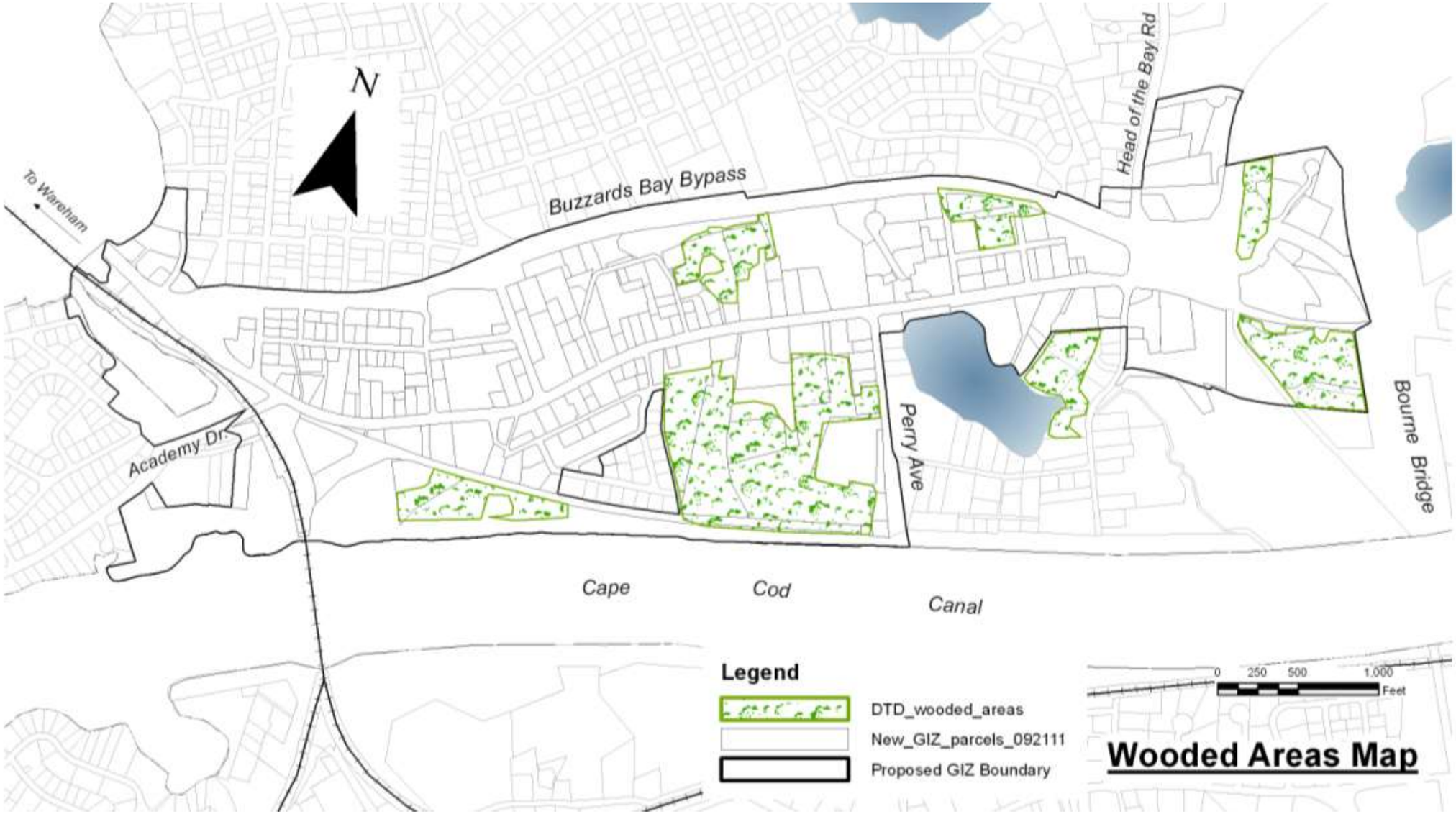
Map III


Wareham
Coastal Bank Dune or Beach
Buzzards Bay Bypass
Shrub Swamp
Shallow Marsh
Salt marsh
Salt marsh
Bourne Pond
Bourne Bridge
Wright Ln
Academy Dr
Shallow Marsh
Perry Ave
Salt marsh
coastal bank
Cape Cod Canal
N
Legend
DTD_wetlands
COASTAL BEACH
SALT MARSH
SHALLOW MARSH MEADOW OR FEN
SHRUB SWAMP
New_GIZ_parcels_092111
Proposed GIZ Boundary
0 250 500 1,000
Feet
Wetland Map

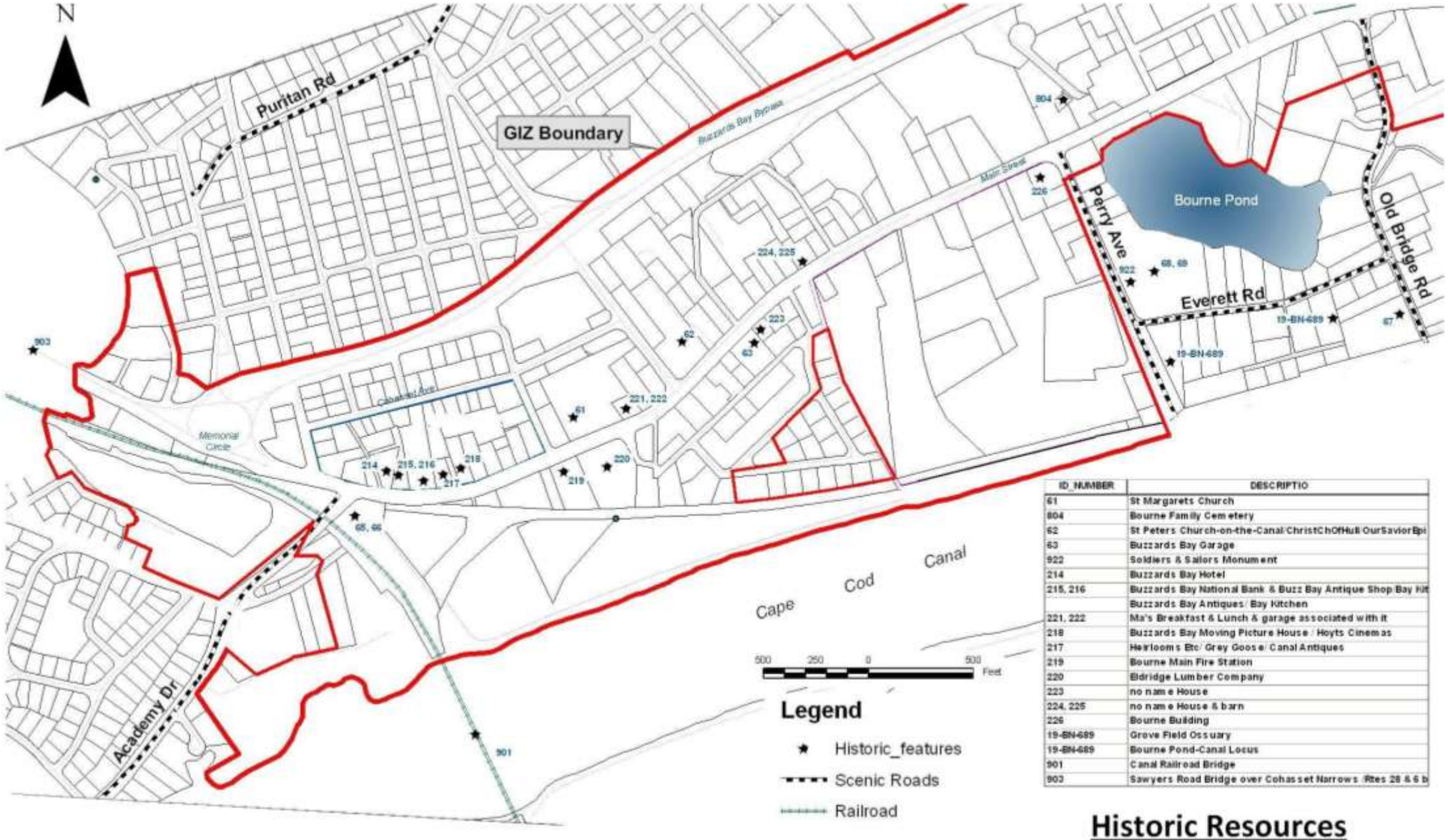
Map III


N
To Wareham
Buzzards Bay Bypass
Route 25
Memorial Circle
Main Street
Belmont Circle
Bourne Pond
Perry Ave
Bourne Bridge
Cape Cod Canal
Legend
Railroad
Proposed GIZ Boundary
PRIHAB_POLY
0 250 500 1,000
Feet
Priorty Habitat Map

Map IV


N
To Wareham
Buzzards Bay Bypass
Head of the Bay Rd
Academy Dr.
Perry Ave
Bourne Bridge
Cape
Cod
Canal
Legend
DTD_wooded_areas
New_GIZ_parcels_092111
Proposed GIZ Boundary
0 250 500 1,000
Feet
Wooded Areas Map

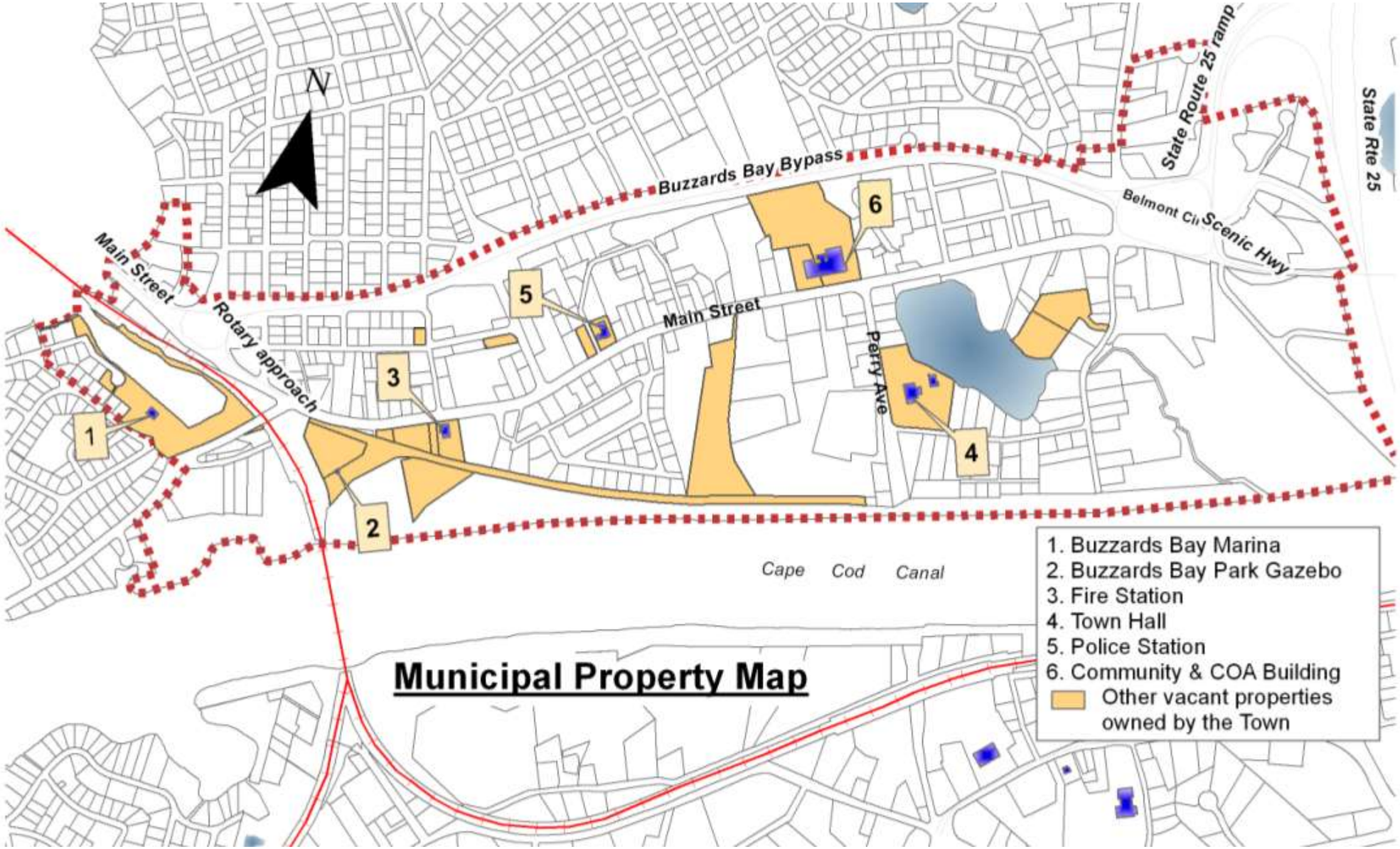
Map VI



ID_NUMBER	DESCRIPTIO
61	St Margarets Church
804	Bourne Family Cemetery
62	St Peters Church-on-the-Canal/ChristChOfHull/OurSaviorEpi
63	Buzzards Bay Garage
922	Soldiers & Sailors Monument
214	Buzzards Bay Hotel
215, 216	Buzzards Bay National Bank & Buzz Bay Antique Shop/Bay Kit
	Buzzards Bay Antiques / Bay Kitchen
221, 222	Ma's Breakfast & Lunch & garage associated with it
218	Buzzards Bay Moving Picture House / Hoyts Cinemas
217	Heirlooms Etc/ Grey Goose/ Canal Antiques
219	Bourne Main Fire Station
220	Eldridge Lumber Company
223	no name House
224, 225	no name House & barn
226	Bourne Building
19-BN-689	Grove Field Ossuary
19-BN-689	Bourne Pond-Canal Locus
901	Canal Railroad Bridge
903	Sawyers Road Bridge over Cohasset Narrows /Rtes 28 & 6 b

Historic Resources

Map VII


N
Buzzards Bay Bypass
State Route 25 ramp
State Rte 25
Belmont Cir
Scenic Hwy
Main Street
Rotary approach
Main Street
Perry Ave
Cape Cod Canal
1
2
3
4
5
6
Municipal Property Map
1. Buzzards Bay Marina
2. Buzzards Bay Park Gazebo
3. Fire Station
4. Town Hall
5. Police Station
6. Community & COA Building
Other vacant properties owned by the Town

List Supporting Documents

1. Buzzards Bay Comprehensive Transportation Plan – June 2007
2. Bourne Zoning Bylaw – reprinted March 2010
3. Pre-Disaster Hazard Mitigation Plan – October 21, 2004
4. Disaster Mitigation Plan – October 21, 2004
5. Wastewater Management Study - Prepared for the Bourne Financial Development Corporation – October 2007
6. Flood Zone Study – December 7, 2007
7. Local Comprehensive Plan – May 12, 2008
8. Municipal facilities Plan Cecil Group March – 2009

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ADDENDUM – March 2012

The Town of Bourne is requesting a cumulative GIZ DRI threshold limit (i.e. "cap") for the Downtown as follows:

i. Phase 1 – 128 residential units, 265,000 SF commercial development potential

ii. Phase 2 – 122 additional residential units (up to 250 units total for Phase 1 & 2; achievable by offset of approximately 30 acres in a DCPC)

iii. Phase 3 – 110 additional residential units (up to 360 units total for all three phases), and 385,000 SF of additional commercial development potential, both contingent upon additional offsets and wastewater infrastructure.

Note: The phased growth approach described herein does not reference geographic phases (as was been previously discussed within the prior version of GIZ application), but rather the implementation of a GIZ decision.