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Final Report: Section 6. Smart Growth Case Study – Easton

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SECTION 6

SMART GROWTH CASE STUDY: EASTON

1.0 INTRODUCTION

The Taunton River Watershed Study included a smart growth case study of one community in the watershed, as an example, to highlight existing smart growth opportunities and to recommend additional smart growth tools that can help that community address some of the ecological and water resources issues identified in this phase of the study. While the breadth and depth of this study does not allow for an in-depth analysis of each community in the watershed, a case study approach can at least provide an example for other communities and may lay the groundwork for future work addressing each community. With the help of the Steering Committee and representatives from the community, the Town of Easton was selected as the focus for this case study. The specific objective of this case study is described below.

Objective: To encourage the progress of the watershed communities' adoption of smart growth techniques, identify areas suitable for smart growth applications, and ensure compatibility with current local bylaws and ordinances.

2.0 OVERVIEW OF EASTON

2.1 Location

Easton is located in the upper northwest section of the Taunton River Watershed boundary, approximately 25 miles southwest of Boston. It is surrounded by the towns of Sharon and Stoughton to the north, Brockton and West Bridgewater to the east, Norton, Taunton and Raynham to the south, and Mansfield to the west.

2.2 Natural Resources

There are three main watershed sub-basins that are located within the Town boundary: the Queset Brook, Black Brook, and Mulberry Brook subwatersheds. The town's flat terrain leads to extensive Flood Hazard areas mapped by the Federal Emergency Management Agency. These areas run north and south along the Town's major streams and spread out in low-lying areas, particularly the Hockomock Swamp area. Hockomock Swamp is one of two Areas of Critical Environmental Concern located within the Town, along with the Canoe River Aquifer Area in the southwest portion of the Town. These areas provide critical habitat to a diversity of wildlife: deer, foxes, beavers, moles, etc; a variety of warm and cold-water fish and amphibians; and permanent and migrating water birds. According to the NHESP, there are approximately twenty-four endangered, rare or threatened species located in Town, and there are thirty-six certified vernal pools.

Easton's extensive wetlands provide wildlife habitat, flood storage areas, pollution abatement, flood control and groundwater recharge (2007 Open Space Plan). They are located principally within the flood plain. A town-wide wetlands inventory, completed by William MacConnell, lists eleven types of open fresh water wetlands, flats, bog, shrub swamp, meadow, shallow marshes, deep marsh, open water, and beaver ponds, but leaves wooded swamp included within the forest land category. Although there are scattered areas of wet meadow, open marsh and a few cranberry bogs in the southeastern portion of the Town, Easton's undeveloped land is primarily woodland and wooded swamp.

2.3 Population/Development Potential

The U.S. Census reported the Town's population at 22,299 in 2000 and estimated its increase to 23,031 in 2006. Recent population projections by the Old Colony Planning Council suggest growth to 29,903 by 2025. At present, the average household size is 2.974 people. According to the 2007 Open space Plan, this growth would require 2,355 acres of land if accommodated in new single-family detached houses, under current zoning. A buildout analysis was completed for the Town in 2000 by the Massachusetts Executive Office of Energy and Environmental Affairs. This analysis projected the default scenario for growth by graphically illustrating what the community may look like if all remaining developable lands were developed, to their maximum potential, based on existing zoning. The results of the analysis reported a net buildable area of 4,897.2 acres that could accommodate 16,211 new residents. If this figure was added to the year 2000 population of 22,299, a total population at full build-out would be approximately 38,510, at an unknown date.

2.4 Transportation Infrastructure

The state highways and major town streets are generally in good condition affording easy access to most parts of Town. However, a number of local streets, collector streets and minor arterials are extremely narrow and are in poor condition. These could be inadequate for significant new subdivisions, but such limitations will not necessarily prevent development.

Sidewalks exist in major business areas and in newer neighborhoods but not along the older, narrower roads. There are few pedestrian/bikeways connecting subdivisions to other neighborhoods, schools, parks, stores or other destinations.

The Massachusetts Bay Transportation Authority (MBTA) provides commuter rail service the nearby towns of Brockton, Mansfield, Sharon and Stoughton. The MBTA is planning to extend commuter rail service from Metro Boston to the cities of Fall River and New Bedford. Planning included an alternative extension plan ("Stoughton Alternative") that would bring commuter service to Easton. According to the Southeastern Massachusetts Commuter Rail Task Force, there are three possible station locations in Easton: 1) Route 138 at the Stoughton Line; 2) the North Easton Station at Oliver Street and Sullivan Avenue; and 3) off of Route 123 at Church Street. Each

alternative will undergo extensive environmental review and the favored route will be selected in 2010.

2.5 Water Service

Easton draws on seven gravel packed wells for its primary public water supply; three in the Queset Brook Aquifer, three in the Canoe River Aquifer and one in the Mulberry Brook Aquifer. A daily average of 2.1 million gallons of water is pumped to residents and businesses/public institutions (approximately 7,134 active services) through 161 miles of water mains. Growth has strained the system on peak days or during droughts. There are also approximately 135 private wells serving residential properties.

2.6 Wastewater Management

Easton primarily relies on on-site subsurface disposal systems for wastewater treatment. There are also three large conventional Title 5 systems (between 2,000 and 10,000 gallon per day (gpd)) in Town and three very large conventional Title 5 systems (>10,000 gpd) systems, which serve condominium complexes. Four small (<40,000 gpd) wastewater treatment plants with on-site subsurface disposal serve three condominium complexes and the Easton School complex. Soil in the western portion of the Town between Eastman St. and Rockland St., and in the southern portion of the Town south of Depot St. and Purchase Street west of Bay Road limit the use of on-site systems. Specifically, the 1992 Undeveloped Land Inventory reported that of 5,795 acres of vacant land, 1,225.5 acres were in flood plain and 1,344.64 acres were severely restricted for septic systems. However, many of these areas are developed since the large lots required by the Zoning bylaw often have some usable soil.

3.0 RELATED PLANNING INITIATIVES IN EASTON

3.1 Comprehensive Wastewater Management Plan

In 2003, the Town of Easton hired a consulting firm (Camp Dresser & McKee, Inc.) to work with their Wastewater Management Study Committee to refine the Town's existing Draft Comprehensive Wastewater Management Plan. The purpose of this revision was to establish long-term wastewater needs for the community, prioritize wastewater needs areas, and develop and screen viable alternatives for wastewater management. The Town's goals for developing this plan were to attenuate the impacts of on-site, subsurface disposal systems, maintain high water quality, and protect the community's natural resources including areas of critical environmental concern (ACEC). The results of the study are listed below.

- Two-thirds of the Town's land area is considered severely limited for septic systems, based on subsurface conditions in the Town.
- Seventeen areas of Town were evaluated based on proximity to environmental resources, zoning, lot size and density of the built environment, suitability of soils for septic systems, and land use characteristics.

- Five studied areas were identified as having the greatest and most immediate need for an off-site wastewater management solution. These areas are generally the central village areas with the most density and/or with the highest percentage of commercially and industrially zoned land.
- Three other study areas were considered to have a need for off-site wastewater management, but the need was not immediate.
- Two alternative approaches were recommended:
 1. Preferred Approach - Regional Treatment. This approach would direct approximately 1.2 mgd to existing wastewater treatment facilities in adjacent towns. This approach would attempt to eliminate failing septic systems.
 2. Alternate Approach - In-Town Treatment and Disposal. This approach would direct approximately 1.2 mgd to 2 proposed new wastewater treatment facilities Town. This approach would attempt to eliminate failing septic systems and would recharge to groundwater. It would require the construction of treatment and disposal systems and a subsurface effluent disposal area(s).
- It was determined that in the nine remaining study areas an on-site solution is feasible.

3.2 Easton Open Space Plan (Dec 2007 Draft update)

In general, the Open Space Plan goals are to extend greenbelt corridors within the Town: north-south Poquanticut Brook/Mulberry Brook corridor, Wheaton Farm to Borderland State Park, Wheaton Farm to Hockomock Swamp, Flyaway Pond to Hockomock Swamp; acquire open space areas to give each developed or developing section of Easton an “open space setting”; protection of existing open space resources; and the creation of additional team sports fields. Although these goals do not contradict those of the Easton Housing Authority, consideration of how to accommodate housing needs while protecting/acquiring open space must be continually discussed.

3.3 Easton Housing Authority Goals

The following Easton Housing Authority goals relate to smart growth planning:

- Develop a Housing Plan that would address the needs and requirements for affordable housing for individuals, family housing, elderly housing and housing for special populations;
- Establish criteria or standards by which Town boards and commissions might use to evaluate proposals for affordable housing under the Comprehensive Permit Law (Ch40B);
- Work with private and/or non-profit developers to facilitate the construction and/or preservation of affordable housing units to meet Easton's fair share, provided that said housing meets the criteria and/or standards established by the housing partnership;

- Encourage the development of a wide variety of housing choices by adopting zoning by-laws and other development regulations that allow alternatives to the single-family home on one acre of land; and
- Develop a system of regular monitoring and enforcement of the requirements of deed restrictions and/or orders of conditions for affordable housing projects in order to maintain its affordable housing inventory.

3.4 Stormwater/Low Impact Development Working Group

A Stormwater and Low Impact Development (LID) Working Group was established to encourage development practices and the use of stormwater treatment methods that provide the greatest benefit and least negative impact to the Town's natural resources, landscape and character. The Group plans to undergo a regulatory review of existing policies, by-laws and processes and make recommendations for changes to meet the new Massachusetts Stormwater Management Standards. In addition, they intend to provide guidance to developers regarding Best Management Practices through the development of design standards that facilitate ease of maintenance and are consistent with the above goal.

3.5 2008 Departmental Goals and Objectives

Department staff was asked to draft goals and objectives for their perspective roles. Goals and objectives established by the Department: Planning and Community Development, which directly relate to smart growth planning, are listed below.

1. Goal: Improve the Quality of Life for Easton Residents.
Objectives:
 - Prepare conceptual plan for the potential redevelopment of Route 138 from Belmont Street to Depot Street;
 - Prepare report relating to business/mixed use zoning on Route 138 (Main Street to the Stoughton town line).
2. Goal: Amend the Easton Planning & Zoning Board Subdivision Rules & Regulations.
Objectives:
 - Propose amendments incorporating Low Impact Development;
 - Propose private road standards for residential compounds; and
 - Propose standards for open space planning.

4.0 WATERSHED STUDY RESULTS IN EASTON AREA

4.1 Taunton River Watershed Study – Easton Sub-watersheds

The water budget study conducted for the entire Taunton River Watershed included four sub-watersheds that are located mainly within the Town boundary. Collectively, there is a surplus of water within these sub-watersheds (approximately 26 cfs). This can be attributed to water recharge from on-site subsurface wastewater treatment versus online

sewer treatment. In addition, this portion of the Town primarily includes forest, croplands, recreation, or low to medium-density residential development. Development that is typically associated with higher water withdrawals or large-scaled stormwater management is (i.e., commercial development) is extremely limited within these watersheds. These sub-watersheds differ from the Coweaset Brook sub-watershed described below.

4.2 Coweaset Brook Sub-watershed Pilot Study

The Coweaset sub-watershed was chosen as a pilot study area as it is septic sensitive of significantly developed areas that includes an unsewered suburban community (Easton) and a portion of a sewer urban center (Brockton). The sub-watershed where water transfers are known to occur. Two streams flow into this sub-watershed: Coweaset and Queset Brooks. The Hockomock River discharges from the sub-watershed below their confluence. The Coweaset is more developed than the sub-watersheds described above with mixed land uses including medium to high-density residential, commercial, and industrial development. One of the most prominent land uses within this sub-watershed is Stonehill College, which is connected to Brockton's sewer system.

The sub-watershed covers 5,314 acres, of which 1,194 (or 22%) are impervious. Approximately 215 acres (18%) of the total impervious area were calculated as "effective impervious area" (i.e., a subset of an area's total impervious area that is directly connected to centralized stormwater systems that discharge to surface waters), and constitutes a net loss of stormwater recharge. Wetlands cover approximately 890 acres, or 17% of the sub-watershed. According to the pilot water budget, existing net recharge (base flow) is estimated to be 5.3 cfs, as compared to an estimated natural (pre-development) flow of the 7.5 cfs. This represents an estimated net loss to base flow of approximately 30%. However, there is a NPDES surface water discharge in this sub-watershed that compensates for this deficit. For the purposes of this case-study, challenges and supporting recommendations will predominantly focus on this sub-watershed and other developed areas in Town with similar issues.

5.0 RECOMMENDATIONS FOR SMART GROWTH TECHNIQUES

Recommendations for how the Town could ensure that development that protects natural resources, enhances quality of life, offers housing choices, reduces energy consumption, and improves municipal finances (Smart Growth) are discussed below.

Recommendations for Smart Growth include: mixing land uses; increasing the availability of a range of housing types in neighborhoods; taking advantage of compact design; preserving open space, farmland, and critical environmental areas; providing a variety of transportation choices; and encouraging community and stakeholder collaboration in development decisions. These recommendations are based on the existing Town plans and studies, existing conditions of the Town (environmental and human-altered) and the results of the watershed study.

5.1 Proposed Regulatory Revisions

Based on a review of the existing planning and regulatory framework within the Town of Easton, a set of regulatory changes is recommended to incorporate smart growth techniques and assist the Town in addressing the water resources challenges and ecological conservation issue identified in this study. For each recommendation listed below, we have provided a brief overview; described the objective of the regulatory change; provided recommended regulatory language, in some cases; provided a reference to the enabling legal authority for the recommended change, if applicable; and identified the responsible agency or department.

5.1.1 General Recommendations

Within all areas, Low Impact Development (LID) techniques should be incorporated into the subdivision, wetlands, and zoning regulations to obtain the long-term environmental benefits of these techniques. Wherever possible, the Town of Easton should request that LID techniques are used. The following language should be considered for inclusion within the Town's Zoning Bylaw (Site Plan Review), and/or the Subdivision Regulations.

LID is a more sustainable land development pattern than the conventional method currently used in most areas. LID incorporates a suite of landscaping and design techniques that attempt to maintain the natural, pre-development hydrology of a site and the surrounding watershed. The goals of LID include:

- *Prevent environmental impacts rather than having to mitigate for them.*
- *Manage water (quantity and quality) as close to the source as possible and minimize the use of large or regional collection and conveyance.*
- *Preserve natural areas and native vegetation, and reduce the impact on watershed hydrology.*
- *Use natural drainage pathways as a framework for site design.*
- *Create a multifunctional landscape.*
- *Utilize a natural system approach and methods for stormwater management.*

An important LID principle is the idea that stormwater is not merely a waste product to be disposed of, but rather that rainwater is a resource. LID also integrates a range of structural best management practices (BMPs) for road design and stormwater and wastewater management systems that minimize environmental impacts. The matrix below provides guidance regarding specific stormwater practices to use for different land uses.

Table X: Selecting Appropriate Practices for Different Land Use Types

<i>LID Practices</i>	<i>Single Family Residential Lot</i>	<i>Small Commercial/Multifamily Lot</i>	<i>Existing Development</i>
<i>Underdrain Soil Filters</i>			
<i>Bioretention System</i>	○	●	⊙
<i>Rain Garden</i>	●	○	⊙
<i>Swale</i>	●	●	⊙
<i>Vegetated Buffer</i>	●	●	●
<i>Infiltration Practices¹</i>			
<i>Dry well</i>	●	●	●
<i>Infiltration Trench</i>	⊙	●	●
<i>Pervious Pavement</i>	●	●	⊙
<i>Rain Barrel/Cistern</i>	●	●	⊙
<i>Green Roof</i>	○	●	●
<i>Stormwater Planter</i>	○	●	●
<i>Micro-bio Inlet</i>	○	○	●

Key: ● = suitable, ⊙ = sometimes suitable with careful design, ○ = rarely suitable

1. Infiltration practices are not appropriate in wellhead protection zones without pretreatment to remove pollutants that contribute to groundwater contamination. In addition, infiltration practices are prohibited for land uses with higher potential pollutant loads (Hotspots), as specified in the Massachusetts Stormwater Management Policy.

5.1.2 Zoning

General. General requirements that should be considered for inclusion within the Zoning Bylaw are as follows:

- Permit the use of common driveways to serve up to four houses, rather than three (Section 8-11), including OSRD lots that do not meet standard dimensional requirements.
- Consider including the following parking requirements:
 - Permit use of permeable paving for parking stalls and spillover parking areas.
 - Do not require more than 3 off-street parking spaces per 1000 square feet of gross floor area in professional office buildings.
 - Do not require more than 4.5 off-street parking spaces per 1000 square feet gross floor area of shopping centers.

- Establish formulas for the utilization of shared parking for uses with different peak demand periods (e.g., office peak demand period 9am – 5pm; housing peak demand period 6pm – 8am.) Allow reduction of parking requirements if shared parking is proposed. Provide model shared parking agreements that can be included as deed restrictions or permit requirements.
- Allow reduced parking for homes and businesses near major transit stops.
- Permit stall width of 9 feet or less for a standard parking space.
- Permit stall length of 18 feet or less for a standard parking space.
- Recommend or require smaller stalls for compact cars, up to 30% of total number of parking spaces.
- Establish landscaping requirements for parking areas that include vegetated islands with bioretention functions.

Special Permit. The bylaw permits two-family, multi-family and apartment uses by special permit. Similarly, two-family conversions are only permitted by special permit. The Town may wish to consider adoption of specific development standards for two-family, multi-family and apartment uses in order to encourage a more compact development pattern within the village center and surrounding neighborhoods. Additionally, mixed-use buildings with ground-floor commercial and upper floor office and residential units would promote economic activity within the village center.

Dimensional and Density Regulations. Compared to the average lot size of 11,000 SF within the village center, the existing zoning regulations require 40,000 SF lots and at least 150 feet of frontage for each lot. These standards, although originally adopted to control unplanned growth and development within the Town, promote a land consumptive land use pattern that significantly increases housing costs and promotes building placement and streetscape patterns that are inconsistent with the traditional village character. Consideration should be given to reduce dimensional standards within the village center. Permitting new or replacement structures to be located within the historic or established front yard setback would significantly improve the streetscape of existing neighborhoods and prevent the gap-tooth affect of newer buildings being setback according to modern zoning requirements that do not reflect the design character of the neighborhood. Other dimensional requirements that should be considered are as follows:

- Establish limits on impervious lot coverage (e.g., 15 %.) in rural, low-density areas (Note: This strategy is not appropriate for town centers, transit-oriented districts, and moderate density neighborhoods, where compact development should be encouraged.)
- Permit the location of bioretention areas, rain gardens, filter strips, swales, and constructed wetlands in required setback areas and in buffer strips.
- Establish limits on the extent of lawn area on residential lots, either area or percentage of lot.

Off-Street Parking Requirements. The current requirements for residential apartments is two spaces per unit. Compared to other bylaws this requirement appears unreasonably high for all apartment buildings. Consideration should be given to lowering the allowed

residential parking figure for mixed-use buildings or base the requirements on the location, size, style and number of bedrooms rather than a blanket requirement for two spaces.

Site Plan Review. Smart Growth provisions exist for Estate Lots, Residential Compounds, Planned Business Districts, Planned Industrial Developments, Home Occupations, Adult Retirement Communities and Open Space Residential Developments. Other than potentially reducing the tract size for some of these special permits, they all represent sound growth management strategies for encouraging compact development patterns.

The Town has created Site Plan Guidelines to ensure that development does not cause detrimental consequences to the environment. Although this is a very comprehensive document, we recommend the following additions/changes for smart growth planning and permitting purposes:

- Allow LID techniques (e.g., bioretention areas, filter strips, swales, and constructed wetlands) to count towards fulfillment of site landscaping/open space requirements; and
- Require that driveway widths are no more than 9 feet. In addition, the requirement for bituminous concrete berming of perimeter of the parking area and driveway perimeters should be changed since this requirement may inhibit the use of LID techniques. The use of pervious material for single family driveways (e.g., porous pavers, paving stones, pervious asphalt or concrete), and/or use of ‘two-track’ design for residential driveways should also be considered.

Overlay Districts. The Town has two existing overlay districts that help to encourage smart growth: the Aquifer Protection District and the Queset Smart Growth Overlay District. The Aquifer Protection District functions as an overlay district and no density bonuses are permitted within the district for any permitted uses. The Queset Smart Growth Overlay District is a 70-acre district, located partially within Zone II, which would include mixed uses. The Development proposal that stimulated the establishment of this district proposes conventional Title V leaching system and Zenon membrane treatment system with some treated effluent being pumped back to existing facilities (the assisted living and Stone Forge complex). An obstacle to accepting this proposal is the stipulations in Section C.4 of Title V that prohibits package treatment plants within the Zone II Aquifer Protection District.

Understanding the significant water and wastewater infrastructure issues in Easton, the Town would likely benefit from using targeted development districts (overlays), in addition to the above-mentioned districts, to direct new growth and development to existing service areas. Additional 40R Smart Growth Overlay Districts and Transit Oriented Development (TOD) districts could be used within Transfer of Development Rights (TDR) “receiving” areas or growth centers. In addition, these techniques would help the Town promote new housing and economic development goals, higher density

mixed-use developments should be considered within the village center and along transportation hubs like the MBTA commuter rail system.

TOD creates mixed-use, higher density communities that encourage people to live, work and shop near transit services and decrease their dependence on driving. TOD reduces auto usage; results in efficient use of existing land, infrastructure, and services; supports the revitalization of community centers and neighborhoods; and fosters a sense of place through the creation of mixed-use centers that combine residential uses with economic activity. TODs that combine a variety of housing alternatives with diverse economic activity provide both employment and living options for a wide range of people, and create a dynamic 24 hour environment. In suburban areas, such as Easton, TOD often takes the form of new development clustered around a rail station on underutilized or vacant sites, which should be considered when discussing the potential MBTA extension through Easton. TOD can be encouraged and/or mandated in the following ways:

- Development of station area plans that include some or all of the following elements: a market study; a physical plan for infrastructure and utility needs; a land use plan; a phasing plan; redevelopment strategies; and recommendations for regulatory changes and incentives to encourage TOD.
- Zoning changes may take the form of modifications to the underlying zoning, interim zoning while plans are prepared for the station areas, or zoning overlay districts. Components of the zoning often include providing for mixed uses, density bonuses, parking restrictions, reduced setbacks, and pedestrian amenities.
- Station area design guidelines can help ensure that new development of redevelopment of existing sites and buildings is pedestrian-friendly, attractive, and connects the neighborhood to the transit station. Design guidelines often address the design of parking (including berms and landscaping around lots), pedestrian furniture, signage, street lighting, sidewalk width and materials, ground level building façade design and materials and respect for neighborhood spaces.
- Siting public facilities near transit stations can act as a catalyst for attracting private investment. Incentives exist for encouraging development and redevelopment near transit, including: sharing infrastructure development costs, providing for brownfield remediation, streamlining the development process, and adopting District Improvement Financing (DIF) and Tax Incentive Financing (TIF) districts.

A nearby example of TOD is Canton, where a Canton Center Economic Opportunity District Bylaw was created that directly encourages TOD and better connect the MBTA Canton Station to the downtown area

http://www.mass.gov/envir/smart_growth_toolkit/pages/SG-CS-tod.html).

In order to support other land conservation programs to protect the outlying open space areas, the Town should consider adopting a TDR program. TDR provides an opportunity to transfer development rights from sensitive (sending districts) to areas that can more easily support additional growth (receiving districts). The TDR program would designate the rural “sending” areas for preservation and the village center and other existing activity centers could be considered for “receiving” areas for medium to high-density

mixed-use development. Developers within the receiving areas would be required to donate to a land mitigation fund that the Town would use to purchase development rights within the sending areas. Please refer to the Massachusetts Smart Growth Toolkit website for specific information regarding the implementation of TDR (http://www.mass.gov/envir/smart_growth_toolkit/pages/mod-tdr.html).

Open Space Residential Development Bylaw. The goal of the bylaw is to preserve open space, natural and historical resources, and rural and scenic character. Developments are approved through a special permit process. Minimum Tract Size is five acres, and it must have at least forty feet of frontage on a public way. At least sixty percent of the total tract area shall be set aside as “Common Land” to be used for natural resource protection, recreation, park purposes, outdoor education, agriculture, horticulture, or forestry. A portion of the Common Land may be also be used for pedestrian walks, bicycle paths, emergency access, and the construction of leaching areas associated with supply wells or septic disposal systems serving the development. Consideration should be given for permitting Open Space Residential Developments (OSRD) as a “by right” form of development (no special permit required). In addition, OSRD should be considered within the Aquifer Protection District at higher densities than the underlying zoning. A more restrictive set of permitted uses could also be considered and adding LID standards for building and site design would support the purpose and intent of this overlay district.

Authority/Responsible Party. Authority is granted to the Town to make changes to its Zoning Bylaw under Chapter 40A, Section 5 of the General Laws of the Commonwealth of Massachusetts and amendments thereto, herein called the "Zoning Act" and the powers granted to the Town under the Home Rule amendment to the Massachusetts Constitution. The responsible party would be the Easton Planning and Zoning Board.

5.1.3 Subdivision Regulations

General. Non-specific revisions that should be considered within the subdivision rules and regulations are as follows:

- Provision to minimize the number of cul-de-sacs and dead-end streets permitted. If presented for permitting, cul-de-sacs should include landscaped areas to reduce their impervious cover.
- Language regarding landscaping that encourages the use of drought-tolerant plant materials and plants that uptake pollutant (if necessary). Also the reduction of clearing of natural vegetation should be mandated. The Town should also consider adding language to ensure that heartier trees remain onsite and/or are replaced with equal caliper trees.
- Standard regarding the use of fertilizers, such as: 0.9 lbs of nitrogen per 1,000 square feet of lawn and garden.
- Requirement that invasive species should not be utilized for landscaping purposes should be considered.
- Permit the use of permeable paving for road shoulders/parking lanes in residential neighborhoods, with use of conventional paving for travel lanes only. Also,

sidewalks should be designed so that the runoff is disconnected from the stormwater system. e.g., place a green strip.

Design and Construction Standards. The design and construction standards require closed drainage, traditional sidewalks, and excessive pavement widths. Additional changes to the preservation of natural areas and open space would provide better protection of groundwater resources.

The drainage design requirements are somewhat outdated, particularly Section 5.10, that mandates a closed drainage system, which may lead to the use of conventional drainage that does not allow for recharge. The Massachusetts Stormwater Manual was recently updated and should be referenced in this section for a more comprehensive approach to stormwater management. LID stormwater management techniques outlined above, such as bio-retention, water quality swales and rain gardens, should be considered as an alternative to the required closed drainage system. This approach not only improves water quality treatment on the site but also should decrease capital expenditure on road and drainage infrastructure. In addition, it is recommended that language be inserted into the regulations discussing how the roadway, drainage design and building construction in all subdivisions shall be designed to reduce, to the greatest extent possible:

- Volume of cut and fill.
- Area over which existing vegetation will be disturbed, especially if within 200 feet of a water body, wetlands resource area, or a slope of more than 15%;
- Number of mature trees removed;
- Extent of waterways altered or relocated;
- Visual impact of man-made elements not necessary for safety;
- Erosion or siltation;
- Alteration of natural flood storage areas;
- Disturbance of important wildlife habitats, outstanding ecological or botanical features, scenic views or historic resources; and
- Detrimental impacts to water quality.

Street width requirements within the regulations are as follows: Residential Minor Street: 24', Residential Major Street: 28', Residential Collector Street: 32'. This provision does not allow for smaller street widths used in LID practices. It is recommended that the Town require a minimum pavement width of 18-22 feet on low-traffic local streets in residential neighborhoods. In addition, the Town should allow narrower pavement widths along sections of roadway where there are no houses, buildings, or intersections, and where on-street parking is not anticipated. It is especially important to involve public works officials and emergency response officials in this discussion.

There is no mention of the use of conservation restrictions to ensure that open space areas and groundwater resources are permanently protected. Example language that can be used in this section is as follows: "Open space land must remain as open space via a conservation restriction or easement to the Town."

Authority/Responsible Party. Authority is granted to the Town to make changes to its Subdivision Regulations under Chapter 41, Sections 81Q of the General Laws of the Commonwealth of Massachusetts and the powers granted to the Town under the Home Rule amendment to the Massachusetts Constitution. The responsible party would be the Easton Planning and Zoning Board.

5.1.4 Wetlands Protection (bylaw and regulations)

The Town of Easton's Wetlands Protection Bylaw and Regulations are quite sophisticated in comparison to other Massachusetts communities. It protects Massachusetts Wetlands Protection Act resources as well as intermittent streams, vernal pools and ponds of any size. However, in order to ensure that recharge to groundwater occurs, LID techniques (such as bioretention areas, infiltration trenches, or grass swales) should be permitted within the buffer zone of state or local jurisdictional wetland resource areas, provided the location of these structures is not in conflict with any other setback criteria required by Massachusetts Wetland Protection Act regulations or the Stormwater Management Policy and Standards. In addition, the Town should consider providing opportunities for staff and Commission members to participate in LID workshops or conferences.

5.2 Proposed Planning Changes

5.2.1 Wastewater Management

The Alternate Approach described above should be considered by the Town in order to keep water local and recharge to groundwater, particularly in the Coweaset sub-watershed and any other sub-watersheds where a water deficit has been calculated.

There are other areas of Town where sewerage was not proposed. The Town may want to consider using/mandating shared septic systems on sites with shallow depths to groundwater, in areas with poor soils, and in higher density areas where the location of individual leaching areas is impractical. A shared system is a traditional septic system that is used by two or more adjacent properties. Recent changes to the State Environmental Code, Title 5 (310 CMR 15.000) encourage shared septic systems in cluster developments, promoting conservation design and smart growth principles. A shared system can be approved if a proposed cluster development complies with Easton's Open Space Residential Development Bylaw, or provides 50% of the site as permanent open space. With the exception of cluster developments, applicants proposing a shared system for new construction must prove that each lot connecting to the system can support a complying Title 5 system of their own. The minimum lot size for a property in a cluster development using a shared system does not have to be controlled by the septic system design because the system can be located on its own separate lot, and therefore density is controlled by the local zoning and subdivision codes.

5.3 Stormwater Management Bylaw (proposed)

In developing the Town's proposed stormwater bylaw, careful consideration should be made to ensuring that annual groundwater recharge rates are maintained, wherever possible, by promoting infiltration through the use of structural and non-structural methods. At a minimum, annual recharge from the post development site should mimic the annual recharge from pre-development site conditions. The stormwater runoff volume to be recharged to groundwater should be determined using the methods prescribed in the 2008 version of the Massachusetts Stormwater Management Standards (or an equivalent local manual).

6.0 CONCLUSION

As discussed, the buildout analysis conducted for the Town shows the substantial growth potential that Easton could undergo over the next few years to upcoming decades. Easton is rich in natural resources that must be protected in order to help replenish the Town's groundwater resources. As noted in the Watershed Study, although there is a surplus of water in a number of sub-watershed areas within Town, this is due to water recharge from on-site wastewater treatment. The Town is currently planning for growth and considering alternative wastewater treatment options that would discharge treated water away from these sub-watersheds, as is done in the Coweaset sub-watershed. Alternative wastewater options should be considered in order to maintain, and in some areas, increase water recharge. In addition, the increase in impervious surfaces due to development decreases water recharge in the sub-watersheds. We have discussed various options for maintaining the hydrologic balance of a development site, as well as methods for preserving open space where natural recharge can occur.

The Town of Easton is well poised for making the proposed regulatory and non-regulatory changes for smart growth planning due to its current level of cross-board coordination (e.g., stormwater working group) and recent planning projects (housing and open space planning).