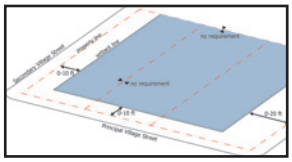
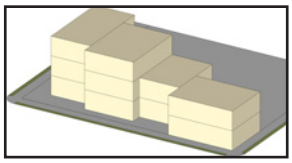
EHVC HANDBOOK:

Concept Plan, Regulations and Design Guidelines





PREPARED FOR THE TOWN OF HARWICH &
THE EAST HARWICH COLLABORATIVE

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Note: The Cape Cod Commission was hired by the Town of Harwich and the East Harwich Village Collaborative to prepare zoning for the East Harwich Village Center (EHVC). The NRP zoning included within this handbook was prepared under separate contract by Joel Russell and under the direction of the East Harwich Collaborative.

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INTRODUCTION

The goal of the East Harwich Village Center District is to create a vibrant walkable and bicycle-friendly mixed residential and commercial neighborhood surrounded by protected open space and focused on a traditional main street characterized by pedestrian-scale development that serves the needs of local residents as well as visitors and residents throughout the region.

The Town of Harwich has prepared this East Harwich Village Center (EHVC) Handbook to guide development in East Harwich in order to create a pedestrian-oriented mixed-use village center with a traditional main street. The plan for East Harwich Village also encompasses adjoining residential neighborhoods with a mix of unit types (including affordable housing) and viable commercial corridors along Routes 137 and Route 39. Residential development that would otherwise be scattered throughout the area surrounding the village center would be clustered in and adjacent to the village center while preserving large tracts of open space in the outlying areas. This Handbook is intended to be used as a tool to create a vibrant district featuring a mix of uses that foster a more pedestrian and bicycle oriented neighborhood for both residents and visitors.

This handbook includes, all in one place, the provisions and regulations intended to create this traditional walkable village surrounded by open space. The plan and regulations will be implemented through the zoning bylaw, subdivision regulations, and specific design guidelines, applied through the town's permitting processes.

The EHVC Handbook is intended to be used by citizens, developers, business owners and town boards and staff as a guide to development in the area. The Handbook consists of three main sections: Concept Plan, Regulations, and Design Guidelines.

The Concept Plan section provides an overview of the general concept for the EHVC main street and surrounding commercial and residential uses of the village. This section contains a general description of the districts within the EHVC, illustrated by plans that show how the districts relate to one another and the public spaces around them. The Concept Plan is a statement of the Town's vision and design intent for the village, showing potential locations of primary village and connector streets. The Concept Plan is not a regulatory document, but rather an area plan showing how the Town would like to see this area develop. The plan shows suggested new street locations and connections to indicate preferred locations for streets and other public spaces. Actual street location may be modified as individual developments proceed based upon circumstances at the time. The Zoning Bylaw provisions include incentives for developers to follow the recommendations in the Concept Plan. The Concept Plan also illustrates important public spaces along the roadway corridors and connections between existing public spaces throughout the district; these are identified on the plan as "Public Space." The Concept Plan is supplemented by an amended zoning map that is intended to implement the Concept Plan and, once adopted by Town Meeting, will become part of the Town's Zoning Bylaw.

The Regulations section includes all of the textual provisions that will become part of the Zoning Bylaw, including dimensional, use, architectural standards and guidelines and other regulations that are applicable to the EHVC. The Regulations section also contains provisions that will be adopted into the Town's Subdivision Regulations by the Planning Board and implemented through subdivision review and approval. This regulatory section is illustrated to provide guidance to the development community and permitting entities on the intent of the regulations. The Building Commissioner and the Planning Board will implement the regulations through the town's permitting processes. These regulations will replace any conflicting zoning, subdivision and general bylaws otherwise applicable in the area.

The Design Guidelines section provides additional guidelines concerning the design of streets, public spaces as well as recommendations on sustainable design of buildings and green infrastructure. They are intended to clarify the overall vision for the EHVC and intent of the Regulations section using both text and illustrations.

Existing Setting and Planning History

The EHVC plan covers the intersections of Route 137 and Route 39 in East Harwich and the surrounding area. The center of the EHVC planning area is currently characterized by single-story, single-use commercial development that is heavily automobile oriented, as provided in the Harwich CH-2 zoning regulations. The CH-2 zone will cover this area until the Town amends its zoning bylaw. Route 137 and Route 39 divide the area into four quadrants and both highways are heavily traveled regional roadways with numerous curb cuts. Route 137 has the highest traffic counts, carrying traffic from Route 6 to the Chatham area. It is designed for high-speed through traffic and is not, in its current configuration, conducive to the slower pace of a village street. East Harwich has experienced significant development activity over the past two decades because it is a good location for regional retail and service business development. Without changes in zoning, the existing pattern of exclusively automobile-related development will probably continue as considerable additional building potential exists within the district.

The EHVC is surrounded to the northeast and northwest by large tracts of undeveloped land. These areas are zoned for suburban residential development and also have significant development potential under existing zoning regulations.

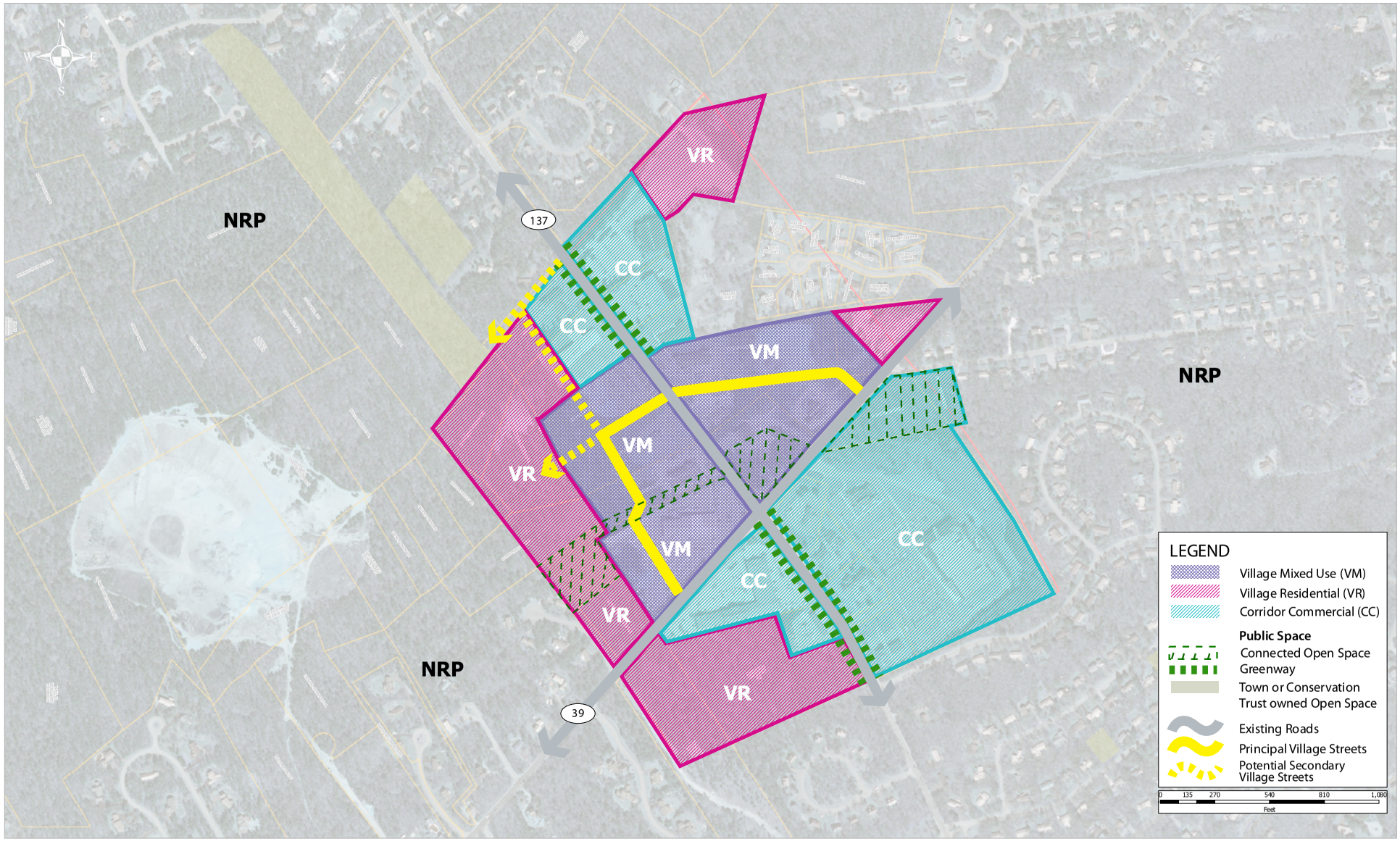
Both the EHVC and the surrounding residentially zoned land are located within the Pleasant Bay watershed, which has been identified by the state as a nitrogen sensitive watershed. The northwest quadrant (north of Route 39 and west of Route 137) is located in an area designated as a District of Critical Planning Concern (DCPC) due to the presence of sensitive water resources (ponds and groundwater) and wildlife habitat. The area also includes land designated as a Drinking Water Resources Protection District by the Town of Harwich. Future development in the EHVC and surrounding residentially zoned land must ensure that these valuable resources are protected. Provision of a denitrifying wastewater treatment facility (or facilities) for the district is critical to the implementation of the EHVC Concept Plan and vision for the area. The town has begun to identify potential wastewater treatment strategies that could support the various uses envisioned in a vibrant compact mixed-use village center.

Since 2005, the East Harwich Village Collaborative (Collaborative) has been involved in a planning initiative focused on East Harwich and funded by a grant from the Barnstable County Regional Economic Development Pilot Project. The East Harwich Initiative aims to involve the community, businesses and property owners in establishing a land use and infrastructure plan to guide the future growth in the area and provide a village-style, pedestrian oriented environment for East Harwich. The East Harwich Village Collaborative consists of a five-member coordinating committee made up of representatives of the Town of Harwich, East Harwich Community Association, Cape Cod Commission, Association to Preserve Cape Cod and the Business Roundtable.

The planning initiative undertaken by the Collaborative has involved numerous public meetings to provide the public, property owners and business owners with the opportunity to guide and comment on the work being undertaken. The Collaborative has also secured the services of several consultants to develop ideas and complete background research during the course of the initiative, including the Cecil Group, Horsley Witten Group, FinePoint Associates, LLC and Fuss & O'Neill Engineers. In the latest phase of work in the EHVC, the Collaborative has worked with the Cape Cod Commission and Joel Russell, a zoning consultant and land use attorney, to develop this handbook that provides a concept plan, guidelines and proposed regulations to guide future development and to encourage a stronger, more traditional village identity for East Harwich.

SECTION 1:

LAND USE, CONCEPT PLAN AND PROPOSED ZONES

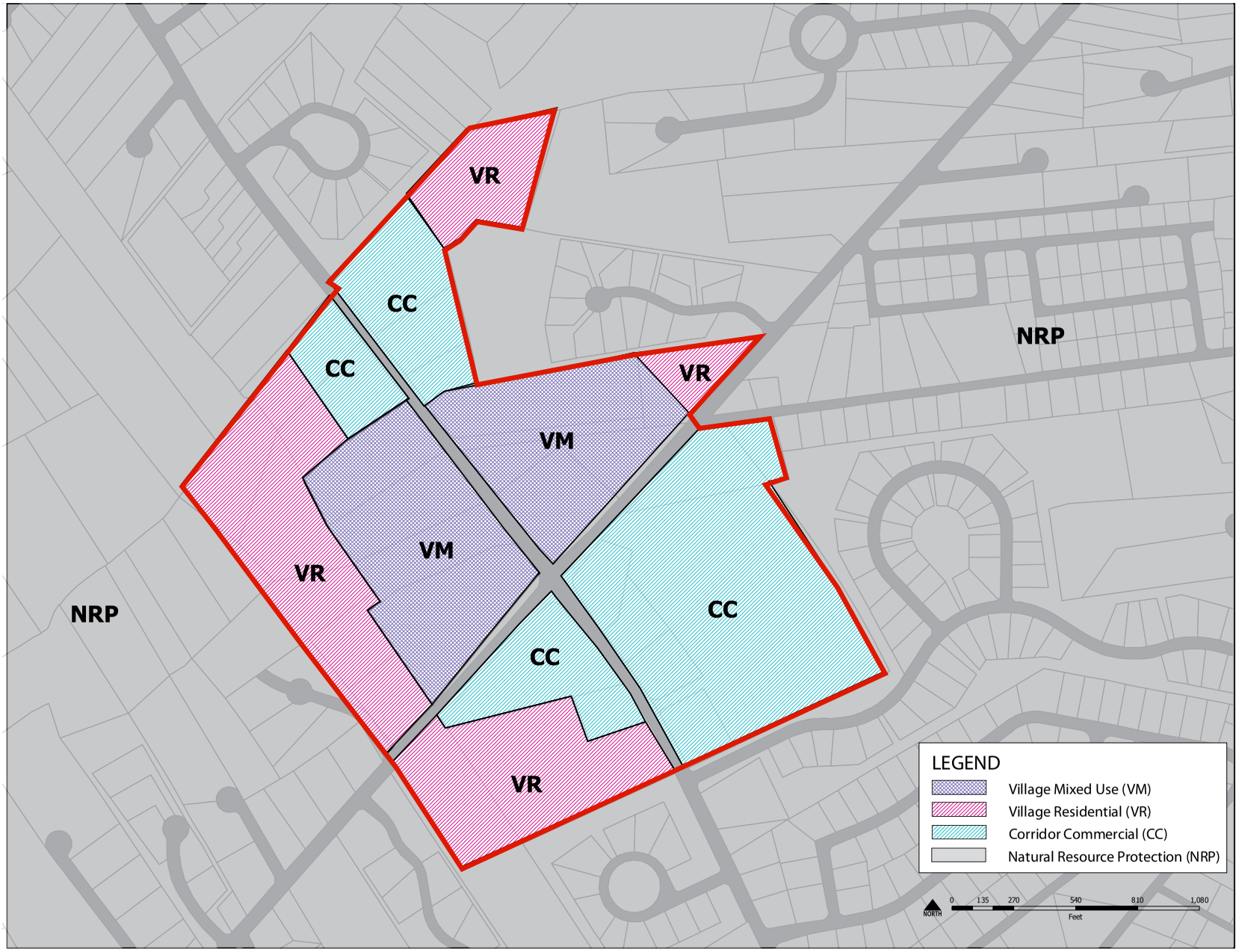


East Harwich Village Center

Concept Plan

This map is produced by the GIS Department of the Cape Cod Commission, a division of Barnstable County. The information depicted on these maps is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretations, or parcel-level analysis. It should not substitute for actual on-site survey, or supersede deed research.

CAPE COD COMMISSION



East Harwich Village Center

Proposed Zoning Map

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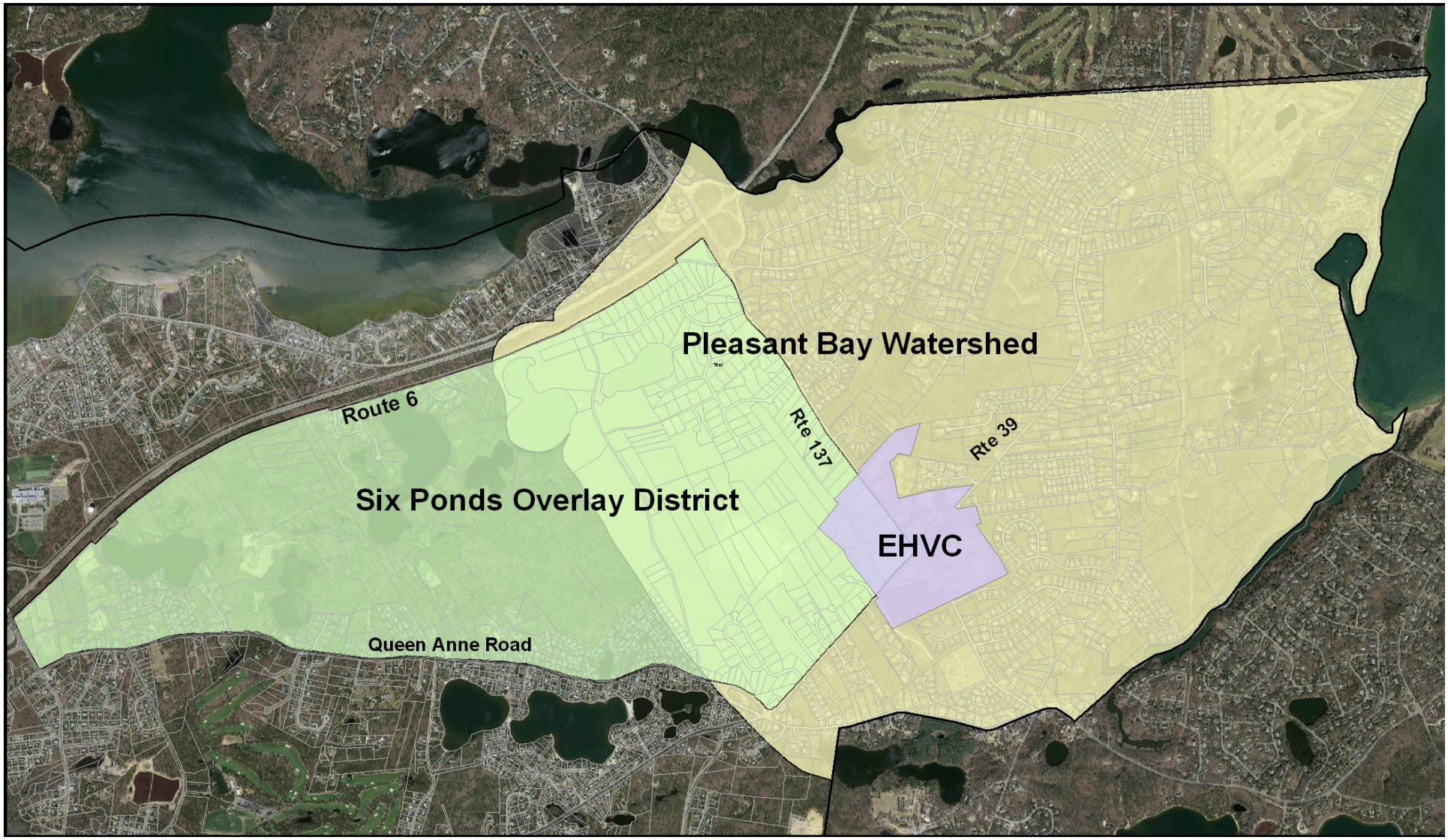


Natural Resource Protection District

NRP District includes the land area within the Pleasant Bay Watershed and/or Six Ponds Overlay District and excludes the area designated as EHVC in the graphic above (areas designated VM, VR or CC on Proposed Zoning Map).

1A: CONCEPT PLAN

The concept plan shown on Page 6 refines the many concepts and ideas developed under the East Harwich Initiative. The concept plan is accompanied by a proposed zoning map that shows how the concept plan would be translated into zoning districts. The concept plan incorporates the goals of the East Harwich Initiative to guide commercial development to match the area's carrying capacity, improve its overall character, and draw residential development into the village center from outlying areas.
The vision for the area is to focus redevelopment efforts on creating a village center with a particular focus on encouraging pedestrian and bicycle amenities. Pedestrian oriented uses help create a vibrant commercial district in the core, with human scale amenities such as pocket parks, landscaping and street furniture.

The concept plan and zoning map depict a mixed-use village main street area (Village Mixed Use (VM) zone) that adjoins a more residentially focused area (Village Residential (VR) zone). Along the major roadway corridors of Route 137 and Route 39, development transitions from the village-style core (VM zone) to lower intensity commercial development with substantial greenway buffers (Corridor Commercial (CC) zone) between the VM zone and the periphery. Away from the commercial corridors, the VR zone creates a transition between the more intensively developed VM zone to clustered lower-density residential development in the adjacent Natural Resource Protection District (NRP) district.

The concept plan envisions a new village center main street through the northeast and northwest quadrants, crossing Route 137 north of the intersection with Route 39. Development along this street and any other new streets will incorporate pedestrian-friendly features such as street furniture and display windows, and developers will be encouraged to use high-quality building materials. Parking areas will be required to be located to the side and rear of street fronting development, and access driveways will be limited to enhance the pedestrian experience. The new main street will be the focus of the village center, characterized by on-street parking and pedestrian oriented, mixed-use development along its length. In the northeast quadrant, the existing Auston Road is envisioned as one segment of the new main street. In the northwest quadrant, no street currently exists but the concept plan shows a possible new roadway opposite the intersection of Auston Road and Route 137. This street is envisioned with a connection to Route 39, creating access to the village center and providing an incentive to focus development away from the Route 137 corridor. Creating this street would require coordination among several property owners. In addition to the principal streets, the concept plan illustrates potential connecting roads that would help establish an interconnected street network to facilitate movement of vehicles in and through the district. The secondary connector roads would be narrow and pedestrian oriented, with a more residential character, especially outside the Village Mixed Use zone.

Green infrastructure is an important component of the village center concept. A green corridor connects the public open space land at the intersection of Route 39 and Route 137 with open space areas to the east and west. To facilitate movement and comfort of pedestrians and bicycles, public open space is also envisioned in pocket parks and plazas that will be encouraged along the principal village streets. The concept plan envisions bicycle accommodations within the shoulders of both Route 137 and Route 39, and "share-the-road" street cross-sections along the principal village streets. Bicycle access is also envisioned along the greenways and green connections shown in the concept plan, linking the area to bike trails in the Hawk's Nest Park area.

The density of development, as defined by the number of residential units per acre and floor area and height of buildings, is intended to transition from higher density in the core to lower density development moving toward the edge. The mix of uses is most intense along the village main street, with commercial development on the ground floor and either commercial or residential development on the

upper stories. Townhouses or other higher-density residential development are envisioned immediately adjacent to the core village area, but small neighborhood-serving commercial uses would also be allowed. Along Route 137, Route 39 and in parts of the southeast and southwest quadrants, the commercial corridor would allow the continuation of uses that are similar to those seen today but with new requirements for landscaping and building placement. These new requirements will improve the appearance of these areas by providing wide landscaped areas adjacent to the existing major streets. Existing commercial developments along the Route 137 and Route 39 corridors could add residential uses in upper stories or as separate residential structures. Traditional forms of development will be encouraged by both dimensional requirements in the zoning and other regulations and also by non-binding architectural and site design guidelines.

1B: ZONING MAP

The proposed zoning map shown on Page 7, together with other regulations in this Handbook, is intended to implement the vision described in the Concept Plan. It divides East Harwich into the following zoning districts:

Village Mixed Use (VM)

The purpose of this district is to create a compact, mixed residential and commercial use main street neighborhood with a pedestrian focus and on-street parking. Buildings will be oriented toward the street to give priority to providing an interesting pedestrian experience. Pedestrian connections between properties and public green space are important features of the VM district. The district is intended to be similar to traditional villages in the region in scale and character. The VM district may accept residential development potential transferred from the more sensitive Natural Resource Protection District (see Section 325-125K on Transfer of Development Rights).

Village Residential (VR)

The purpose of this district is to encourage residential development that provides a transition from the mixed-use VM district to the more rural residential neighborhoods outside the village core. The VR district is within easy walking distance of the main street and adjacent commercial areas. Residential dwelling units in these neighborhoods may be in multi-family structures or within attached single family dwellings such as townhouses. Some neighborhood scale live-work or small commercial uses may also locate in mixed use buildings. The VR district may accept residential development potential transferred from the more sensitive Natural Resource Protection District (see Section 325-125K on Transfer of Development Rights).

Corridor Commercial (CC)

The purpose of the Corridor Commercial district is to allow commercial uses that are more automobile-oriented to locate outside of the village mixed use district along the existing Route 137 and Route 39 corridors. The CC district also recognizes that the current configuration of the existing roads, especially Route 137, does not lend itself to village main street development. Development in the Corridor Commercial district is lower density in recognition of its existing character and to allow more intense development in the VM zone without significantly increasing overall commercial build-out in East Harwich. Over time, the commercial character of this district will be softened by the use of landscaped greenways with pedestrian and bicycle amenities along the principal corridors, shared access, larger landscaped and open space areas, and parking to the side or rear of buildings. To encourage mixed residential and commercial uses where appropriate, residential units may be provided in the upper stories of commercial buildings, or separate detached buildings.

Natural Resource Protection District (NRP)

The purpose of this district is to provide a large greenbelt around the East Harwich village center area and to protect sensitive natural resources, including the Pleasant Bay watershed, drinking water supplies, wildlife and plant habitats, and the Six Ponds District of Critical Planning Concern. The NRP district requires clustering of development with large set-asides of protected open space and encourages the transfer of residential development rights to the village core area. The growth management provisions of the NRP district are intended to serve as an offset and balance to the greater intensity of development inside the EHVC.

1C. PUBLIC SPACE

The EHVC Public Space system encompasses all open space areas and includes greenways, conservation lands, pocket parks and plazas, and greens. More broadly, the Public Space includes pedestrian and bicycle travel ways along streets and all outdoor spaces open to the public. The purpose of the Public Space is to encourage the integration of open spaces with non-motorized travel ways within the built environment of the EHVC. All new development or redevelopment projects are encouraged to arrange their site plans to facilitate pedestrian and bicycle travel along areas of public open space, particularly those designated in the concept plan for East Harwich Village Center.

SECTION 2:

REGULATIONS

2A: ZONING REGULATIONS

Article XX: East Harwich Special Zoning District Provisions

§ 325-115 Purpose and Intent

A. The purpose of this Article XX is to create a pedestrian-oriented mixed-use village center with a traditional main street, adjoining residential neighborhoods, and viable commercial corridors along Route 137 and Route 39, surrounded by an area devoted to natural resource and open space preservation, as described in the East Harwich Village Center (EHVC) Concept Plan contained in the EHVC Handbook (add reference & adoption information). This bylaw seeks to encourage village development and redevelopment that:

1. Implements the EHVC Concept Plan
2. Fulfills the goals of the Harwich Local Comprehensive Plan and the EHVC, as cited in the EHVC Handbook.
3. Provides opportunities for living, working, shopping, and leisure activities in a compact mixed-use neighborhood with a walkable main street.
4. Provides pedestrian connections between properties and encourages walking and bicycling.
5. Maintains a greenway connection through the district.
6. Uses the Low Impact Development (LID) approach to stormwater management.
7. Shifts development intensity away from adjacent rural areas into the EHVC to enhance vitality of the village core and protect the resources and character of areas outside that core.

§325-116 Applicability of this Bylaw

A. Zoning Map.
This article establishes four EHVC zoning districts: the Village Mixed (VM) District; the Village Residential (VR) District, the Corridor Commercial (CC) District, and the Natural Resources Protection District (NRP) as shown on the Town of Harwich Zoning Map as amended, dated xx 2011.

B. Relationship to other regulations.
This article applies to all development within the four EHVC zoning districts. Other sections of the Town of Harwich Zoning Bylaw also apply within these special districts, except that where this article conflicts with or differs from other sections of the Harwich Zoning Bylaw, this article shall control.

§325-117 Relationship to EHVC Concept Plan and EHVC Handbook

The East Harwich Village Center Concept Plan presents a graphic representation of the Town's vision and intent for the EHVC. Architectural standards and guidelines in Section 325-122 are intended to achieve this intent. Provisions in Section 325-122 that are explicitly identified as "standards" are required. For convenience of reference and use, the EHVC Handbook combines this zoning article, the EHVC Subdivision Regulations, the EHVC Design Guidelines, and the EHVC Concept Plan into one user-friendly document. The Concept Plan is an advisory document intended to convey the general intent of the regulatory provisions and to guide discretionary decisions such as special permits. The Design Guidelines section of the Handbook is also advisory and is intended to guide decisions on the design of streetscapes and public spaces and to encourage green design practices. This zoning article and the adopted subdivision regulations are mandatory. The Planning Board shall consider consistency with the EHVC Concept Plan and advisory Design Guidelines in reviewing special permits in the EHVC districts.

§ 325-118 Use Regulations for the VM, VR, and CC Districts

A. Permitted Uses.
In the following EHVC Table of Use Regulations, uses that are permitted by right in the district are designated by the letter (P). Uses that may be permitted by special permit in the district, in accordance with §325-119, are designated by the letter (S). Uses designated (-) are not permitted in the district. Use definitions that apply to this Table are found in § 325-2 and §325-127.

Any use listed as a use permitted by right in the EHVC Table of Use Regulations shall require Site Plan Approval if it meets the applicability requirements of §325-123. Any use listed as a use permitted by right in the EHVC Table of Use Regulations shall be designated as a Special Permit use if the use proposes a structure or structures having a net floor area of more than 15,000 square feet, except that single-family, religious and educational uses shall be exempt from this provision.

EHVC Table of Use Regulations				
District	**VM**	**VR**	**CC**	**Functional Standards**
Use				
Residential Uses				Residential uses allowed on upper floors only in the VM and CC districts. Street level access to dwelling units allowed provided that it occupies no more than 20% of the street frontage.
Accessory Apartment Unit	P	P	P	
Mixed-Use Development	P	P	P	
Home occupation	P	P	-	See §325-36.
Dwelling, multi family	-	P	-	Townhouse, rowhouse, or apartment building permitted in VR.
Dwelling, Two-Family	-	P	-	Townhouse, rowhouse, or apartment building permitted in VR.
Dwelling, Single Family	-	-	-	
Single family dwelling with accessory apartment	-	P	-	
Shared Elderly Housing	P	P	-	
Lodging				See § 325-118 C3. Non-Residential Use Limitations in VR
Inn	P	-	P	
Hotel or motel	P	-	P	
Public and Quasi Public Uses				
Church or other religious purposes	P	P	P	
Educational Use, non-profit	P	P	P	
Essential Services facility	S	S	S	
Municipal Use	P	P	P	
Public library or museum	P	S	P	
Nursing Home	S	S	-	
Assisted Living Facility	S	S	-	
Retail Business and Consumer Service Uses				Not permitted on upper levels in VR. See § 325-118 C3. Non-Residential Use Limitations in VR
Art Gallery	P	P	P	
Artisan Studio	P	P	P	
Auto Sales	-	-	P	
Educational Use, for profit	P	S	P	
Medical clinic, medical office	P	-	P	
Theater, indoor	P	-	P	

EHVC Table of Use Regulations				
District	**VM**	**VR**	**CC**	**Functional Standards**
Use				
Offices, professional, business, or consumer service	P	P	P	No stand-alone offices permitted in VR. Office use is not permitted on street level in VM unless it occupies less than 20% of the street frontage.
Outside display for retail uses	P	S	S	
Personal service establishment	P	P	P	
Indoor recreation and amusement services	P	S	P	
Neighborhood Retail or Service	P	P	P	
Repair service, miscellaneous	-	-	P	Limitations: auto repair service prohibited. See §325-118 B.
Retail sales	P	-	P	
Food Services				See § 325-118 C3. Non-Residential Use Limitations in VR.
Eating and drinking establishment	P	S	P	See § 325-118 C1. Formula Business limitations.
Restaurant with fast-food or takeout	S	-	S	See § 325-118 C1. Formula Business limitations and § 325-118 C2. Drive-Up Facility Limitations.
Food Sales such as bakery, grocery, deli, fish market, farmers market or similar establishment for production and/or sale of food and beverages	P	S	P	

B. Prohibited Uses

The following uses are prohibited in the EHVC zoning districts:

1. Automotive service station (except as accessory use to Auto Sales), repair garage, auto body shop, paint shop, or car washing establishment
2. Contractor Garage
3. Filling Station
4. Self storage facility
5. Adult Entertainment

C. Use Limitations

1. Formula Business Limitations. Permitted businesses and retail uses shall not include a business which is required by contractual or other arrangement to maintain one or more of the following items: standardized ("Formula") array of services and/or merchandise, trademark, logo, service mark, symbol, décor, architecture, layout, uniform, or similar standardized features and which causes it to be substantially identical to more than 10 (ten) other businesses regardless of ownership or location.

2. Drive-Up Facility Limitations. Drive-up windows and/or drive-through facilities are prohibited, except for banks.

3. Non-Residential Use Limitations in VR. Non-residential uses in VR may not exceed 3,000 square feet per building and may not exceed 25% of the gross floor area of a building.

D. Uses Similar to Listed Uses.

A Special Permit may be granted in accordance with Section 325-119 for any use not identified specifically in the Use Table as a permitted use (or as a prohibited use under any section of the zoning bylaw) but which is of the same character and impact as those permitted within the district, provided that the Planning Board finds that the use will not be detrimental to the other uses within the district.

E. Transitional Exemption

This bylaw shall not apply to any development application that has received site plan approval or a special permit prior to [date of adoption].

§ 325-119 Special Permit Authorization

A. The Planning Board is the Special Permit Granting Authority (SPGA) for the East Harwich Village Center zoning districts.

B. Review criteria for uses requiring special permits.
For uses requiring special permit authorization in accordance with §325-118A and §325-118D, the Planning Board shall follow §325-121 A and the EHVC Handbook when considering a special permit application. In addition, to grant special permit approval the Planning Board also shall find that the proposed development meets the following criteria:

1. The proposed development is consistent with the purpose and intent of the EHVC (§325-115).
2. The proposed development is consistent with the EHVC Concept Plan and Section 3 - Design Guidance.
3. The proposed development will not be detrimental to EHVC and the surrounding neighborhood.

§ 325-120 Changes, Expansion, Alteration of Non-Conforming Uses and Structures

A. Continuation
Any lawfully established lot, structure or existing use at the time of the adoption of this section that does not conform to the provisions of the EHVC shall be allowed to continue subject to the requirements of Section 325-54.

B. Alteration and expansion

1. By right
   The alteration and expansion of a building or structure is permitted by right provided that the alteration or expansion conforms to the following:
   (a) Applicable dimensional standards in §325-121A
   (b) Those portions of Section 325-122 that are identified as standards.
   (c) Notwithstanding §325-120 B(1)(a) and (b), existing buildings in the EHVC that exceed the maximum setbacks of Section §325-121A may be altered and/or expanded by right provided that the alteration and/or expansion conforms with the all provisions of this bylaw other than the maximum setback requirements.

2. By Special Permit
   (a) The alteration or expansion of an existing lawfully established building or structure that does not qualify under the "by right" provisions in §325-120A shall be allowed only by special permit from the Planning Board. In granting such a special permit, the Planning Board shall find that:
      1) The proposed alterations and/or expansions are not substantially more detrimental to the environment or character of the neighborhood than the existing building or structure;
      2) The proposed alterations and/or expansions are consistent with the purpose and intent of the EHVC (§325-115); with the Architectural/Design standards in §325-122; with the EHVC Concept Plan; and with Section 3 - Design Guidance.
      3) Any dimensional relief granted will result in improved building layout or enhanced pedestrian amenities, including public open space.

§325-121 Dimensional Regulations

A. The following tables establish the dimensional requirements for development in the EHVC.

§325-121 A(1): East Harwich Village Center District Summary

The purpose of the East Harwich Village Center (EHVC) District is to provide a vibrant walkable and bicycle friendly mixed residential and commercial use neighborhood characterized by pedestrian-scale development that serves the needs of local residents as well as visitors and residents throughout the region.

Density	Village Mixed Use (VM)	Village Residential (VR)	Corridor Commercial (CC)
Base residential density (dwelling units/acre)	10 [1]	10 [1]	4

[1] Base residential density may be increased with Transfer of Development Rights (TDR) from NRP per Section 325-121C

Setbacks			
Front, side or rear on Principal Village Street or Secondary Village Street	0 ft. min.; 10 ft. max. [2]	10 ft. min.; 30 ft. max. [2]	10 ft. min.; 40 ft. max. on Secondary Village St. [2]
Front or side on Route 39	0 ft. min.; 20 ft. max. [2]	10 ft. min.; 30 ft. max. [2]	10 ft. min.; 40 ft. max. [2]
Front or side on Route 137	0 ft. min.; 20 ft. max. [2]	20 ft. [2]	50 ft. [2]
Interior side	no requirement	no requirement	10 ft.
Rear	no requirement	20 ft. Principal Building; no requirement for Accessory Building	25 ft.

[2] Setback max. 50 ft. if public open space/park between sidewalk and building

Building Massing			
Height (stories)	1.5 story min.; 2 story max.	1.5 story min.; 2 story max.	1 story min.; 2 story max.
Height (max. feet)	30 feet	30 feet	30 feet
Height if 8 dwelling units/acre or more (max. stories)	3 stories	n/a	n/a
Height if 8 dwelling units/acre or more (max. feet)	42 feet	n/a	n/a
Accessory buildings	2 stories	2 stories	2 stories

Lot Coverage			
Base lot coverage	per CH2 zoning 1/1/11 [3]	per CH2 zoning 1/1/11 [3]	per CH2 zoning 1/1/11 [3]
Lot coverage with bonus	70% [4]	50% [4]	n/a

[3] Former CH2 lot coverage described in Section 325-121B

[4] Base lot coverage may be increased up to the lot coverage with bonus in accordance with Section 325-121B3

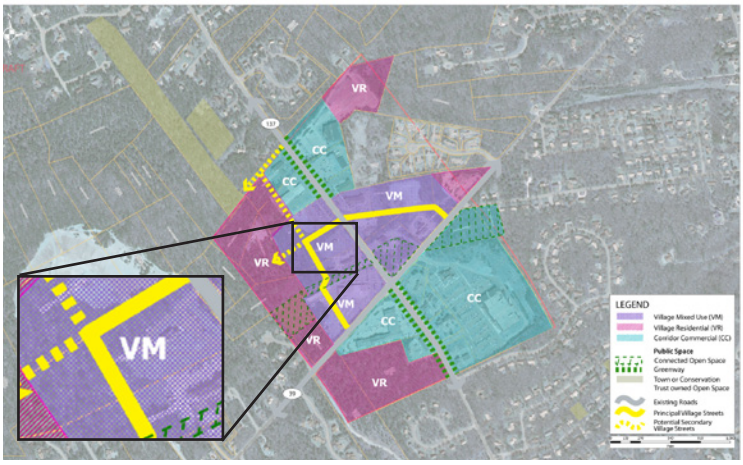
Street Enclosure/Transparency			
Building frontage on Principal Village Street	70% min. at setback	n/a	n/a
Street facing facades	40% of ground floor transparent	n/a	n/a

Parking Placement			
Location	At least 20 ft. from a street	At least 20 ft. from a street	At least 60 ft. from a street
Placement [5]	At least 10 ft. behind building facade, not between building and sidewalk	At least 10 ft. behind building facade, not between building and sidewalk	At least 10 ft. behind building facade, not between building and sidewalk

[5] See Section 325-124 for additional requirements

§325-121 A(2): Village Mixed Use District:

The purpose of the VM neighborhood district is to create a higher density mixed residential and commercial use neighborhood that is characterized by a pedestrian focus and on-street parking, with buildings oriented to the roadways and maintaining a pedestrian scale and level of interest. Pedestrian connections between properties and public green space are important features of the VM district.



Density	
Base residential density (dwelling units/ acre)	10 [1]

[1] Base residential density may be increased with Transfer of Development Rights (TDR) from NRP per Section 325-121C

Setbacks	
Front, side or rear on Principal Village Street or Secondary Village Street	0 ft. min.; 10 ft. max. [2]
Front or side on Route 39	0 ft. min.; 20 ft. max. [2]
Front or side on Route 137	0 ft. min.; 20 ft. max. [2]
Interior side	no requirement
Rear	no requirement

[2] Setback max. 50 ft. if public open space/park between sidewalk and building

Building Massing	
Height (stories)	1.5 story min.; 2 story max.
Height (max. feet)	30 feet
Height if 8 dwelling units/acre or more (max. stories)	3 stories
Height if 8 dwelling units/acre or more (max. feet)	42 feet
Accessory buildings	2 stories

Lot Coverage	
Base lot coverage	per CH2 zoning 1/1/11 [3]
Lot coverage with bonus	70% [4]

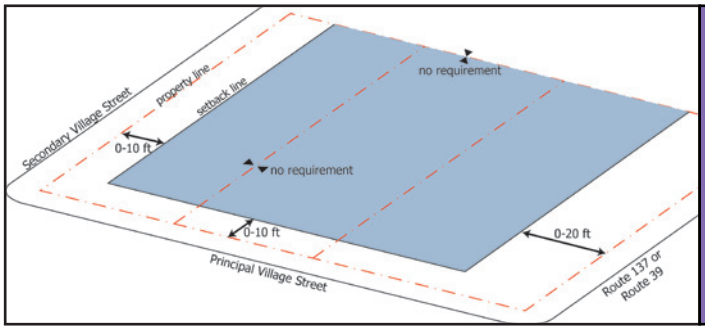
[3] Former CH2 lot coverage described in Section 325-121B

[4] Base lot coverage may be increased up to the lot coverage with bonus in accordance with Section 325-121B3

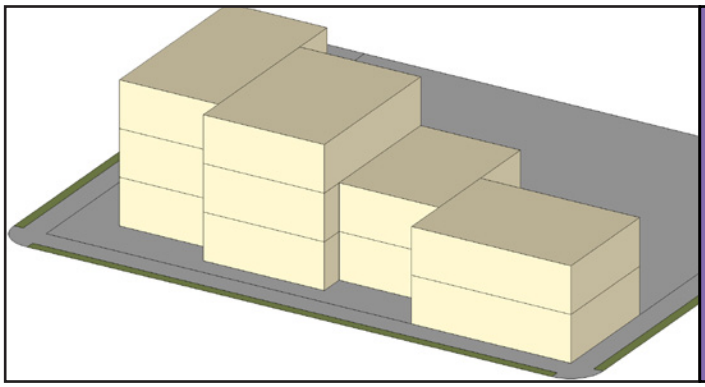
Street Enclosure/Transparency	
Building frontage on Principal Village Street	70% min. at setback
Street facing facades	40% of ground floor trans-parent

Parking Placement	
Location	At least 20 ft. from a street
Placement [5]	At least 10 ft. behind build-ing facade, not between building and sidewalk

[5] See Section 325-124 for additional requirements

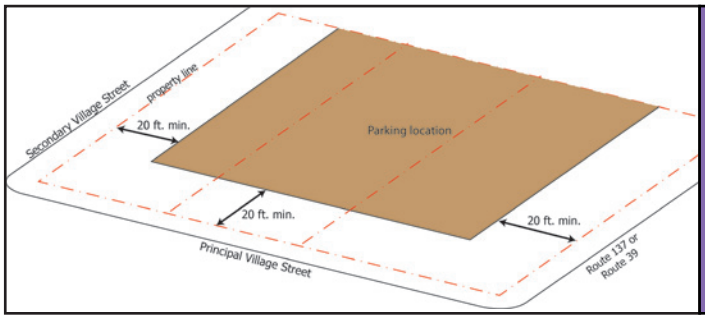


Setbacks



Massing

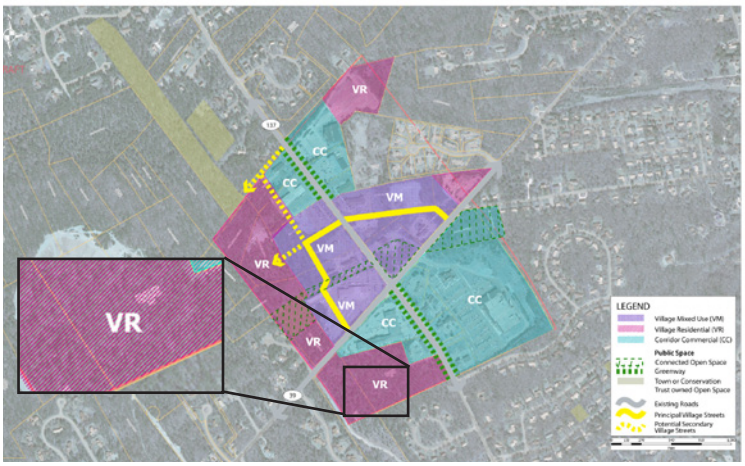
Illustrative block configuration



Parking placement

§325-121 A(3): Village Residential District

The purpose of the VR neighborhood district is to encourage a less dense mix of residential and neighborhood-scale commercial uses. The VR district is intended to provide a transitional zone from the densely developed VM district to the more rural residential neighborhoods adjacent to the EHVC. Residential dwelling units generally are to be provided within mixed-use buildings or within attached single family dwellings such as townhouses. Pedestrian connections between properties and public green space are important features of the VR district.



Density	
Base residential density (dwelling units/acre)	10 [1]

[1] Base residential density may be increased with Transfer of Development Rights (TDR) from NRP per Section 325-121C

Setbacks	
Front, side or rear on Principal Village Street or Secondary Village Street	10 ft. min.; 30 ft. max. [2]
Front or side on Route 39	10 ft. min.; 30 ft. max. [2]
Front or side on Route 137	20 ft. [2]
Interior side	no requirement
Rear	20 ft. Principal Building; no requirement for Accessory Building

[2] Setback max. 50 ft. if public open space/park between sidewalk and building

Building Massing	
Height (stories)	1.5 story min.; 2 story max.
Height (max. feet)	30 feet
Height if 8 dwelling units/acre or more (max. stories)	n/a
Height if 8 dwelling units/acre or more (max. feet)	n/a
Accessory buildings	2 stories

Lot Coverage	
Base lot coverage	per CH2 zoning 1/1/11 [3]
Lot coverage with bonus	50% [4]

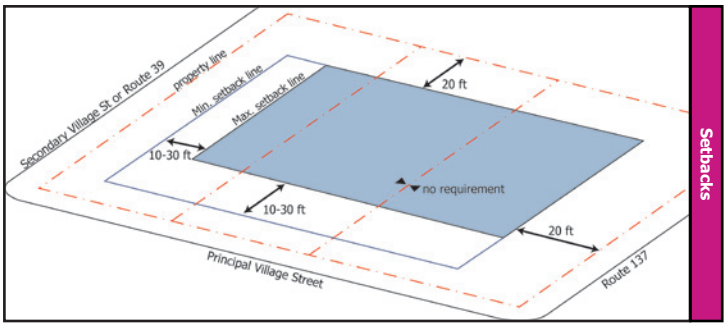
[3] Former CH2 lot coverage described in Section 325-121B

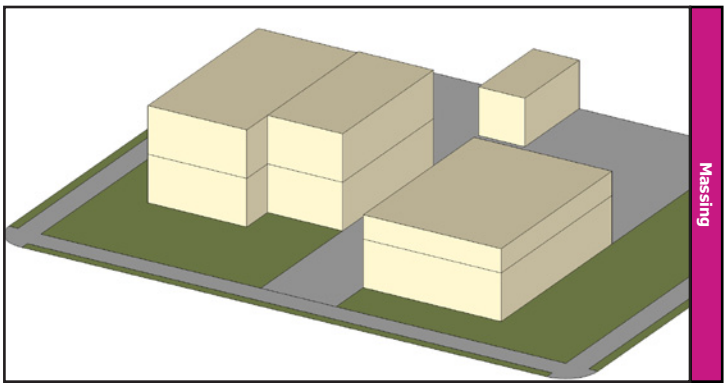
[4] Base lot coverage may be increased up to the lot coverage with bonus in accordance with Section 325-121B3

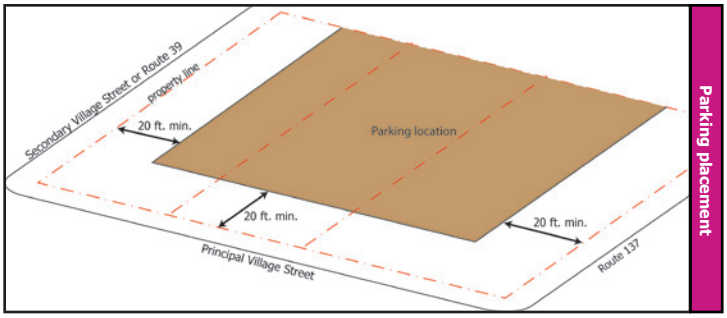
Street Enclosure/Transparency	
Building frontage on Principal Village Street	n/a
Street facing facades	n/a

Parking Placement	
Location	At least 20 ft. from a street
Placement [5]	At least 10 ft. behind building facade, not between building and sidewalk

[5] See Section 325-124 for additional requirements







§325-121 A(4): Corridor Commercial District

The purpose of the Corridor Commercial district is to allow for commercial uses along Route 137 outside of the more densely configured Village Mixed-Use neighborhood. To encourage mixed residential and commercial uses where appropriate, residential units may be provided in the upper stories of commercial buildings.

Density	
Base residential density (dwelling units/ acre)	4

Setbacks	
Front, side or rear on Secondary Village Street	10 ft. min.; 40 ft. max. [1]
Front or side on Route 39	10 ft. min.; 40 ft. max. [1]
Front or side on Route 137	50 ft. [2]
Interior side	10 ft
Rear	25 ft.

[1] Setback 50 ft. if public open space/park between sidewalk and building

Building Massing	
Height (stories)	1 story min.; 2 story max.
Height (max. feet)	30 feet
Height if 8 dwelling units/acre or more (max. stories)	n/a
Height if 8 dwelling units/acre or more (max. feet)	n/a
Accessory buildings	2 stories

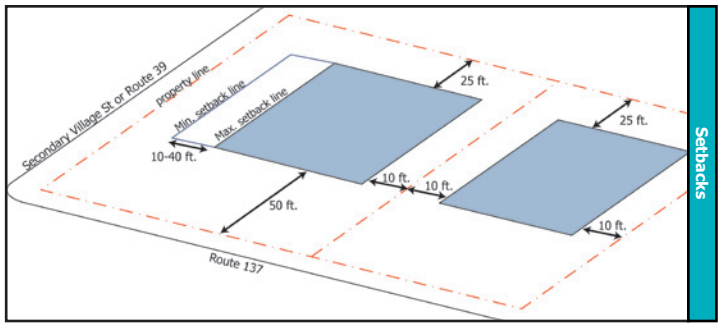
Lot Coverage	
Base lot coverage	per CH2 zoning 1/1/11 [2]
Lot coverage with bonus	n/a

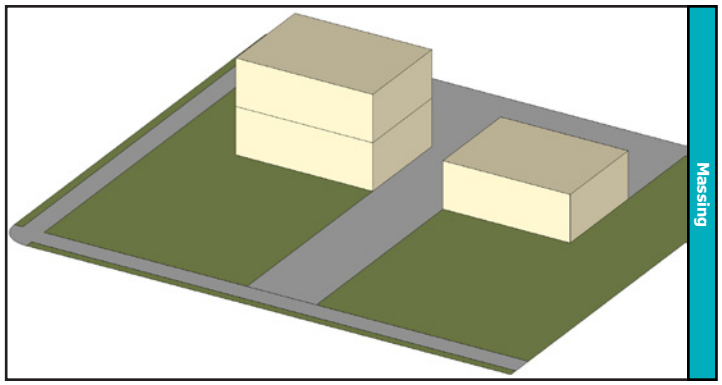
[2] Former CH2 lot coverage described in Section 325-121B

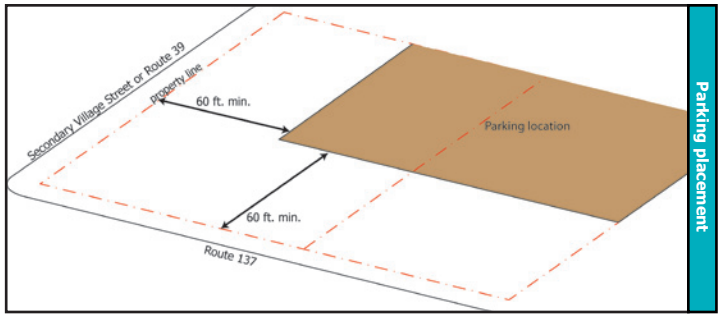
Street Enclosure/Transparency	
Building frontage on Principal Village Street	n/a
Street facing facades	n/a

Parking Placement	
Location	At least 60 ft. from a street
Placement [3]	At least 10 ft. behind building facade, not between building and sidewalk

[3] See Section 325-124 for additional requirements







B. Lot Coverage Calculations

1. Road Rights-of-Way
   To encourage connections of incomplete roadways to abutting property, land within the rights-of-way of principal village streets that connects to or is reserved to connect to abutting property and is consistent with street standards in §400-23 of the EHVC Subdivision Regulations is not counted towards total lot coverage amount.
2. CH2 Zoning District
   The maximum lot coverage allowed in the CH-2 Zoning District on January 1, 2011 is as follows:
   1) Drinking Water Resource Protection District: 40% maximum lot coverage;
   2) Six Ponds DCPC Area A: 30% maximum lot coverage;
   3) Six Ponds DCPC Area B:15% maximum lot coverage.
3. The Planning Board may grant a bonus to the base lot coverage allowance in accordance with Section 325-121A if a project advances the EHVC concept plan by providing a principal village street, where applicable, and provides open space or greenway in accordance with the EHVC concept plan, or provides another type of Public Space in accordance with Section 3C of the EHVC Handbook.

C. Residential Density Bonuses for Transfer of Development Rights (TDR) from NRP
To encourage transfer of residential development from the NRP District to VM and VR Districts, base residential density may be increased by transfer of development rights from NRP in accordance with §325-125K, not to exceed 16 dwelling units per acre.

§325-122 EHVC Architectural/Design Standards for the VM, VR, and CC Districts

These architectural and design standards complement the dimensional regulations contained in § 325-121, which direct building placement, building massing, and overall site character through building setback requirements, building height, lot coverage, street enclosure and parking. The following standards support and further the goals of the EHVC to develop a pedestrian-focused main street with traditional village character. These standards are mandatory. They are repeated in Section 3 - Design Guidance, where they are illustrated and presented along with additional architectural guidelines which are optional.

A. Building Orientation
All buildings in the VM and VR districts shall orient their principal façade and entry to face the village street or a public open space to reinforce the building's primary relationship to the street.

B. Building Height
One-story buildings shall have a front elevation of at least 15 feet and incorporate vertically proportioned features to create the appearance of a taller building.

C. Massing of Large Building Forms
Building footprints over 10,000 square feet shall break down the mass into smaller components and/or integrate smaller tenant spaces into the front of the building so that the front facade resembles connected main street buildings.

D. Roof Forms
Buildings with pitched roofs shall have a primary roof form with a slope of at least 7:12. Buildings or portions of buildings with a flat roof shall have an articulated cornice or other architectural treatment that appears as an integral part of the building from all visible sides of the building.

E. Façade Variation
Blank building walls longer than 30 feet without an opening that are adjacent to streets, residential neighborhoods, and to open spaces are prohibited.

F. Door and Window Openings
Door and window openings shall be vertically proportioned, except for storefront windows, consistent with traditional building design, drawing their proportions from the façade length and height. All windows, except storefront windows, shall be operable.

G. Encroachments into Front Setback Area
Use of the front setback area is permitted only for pedestrian access/amenities such as walkways, benches, dining areas, and other outdoor accessory uses. Awnings, balconies and architectural features may project into the front setback in all districts. In VR, porches, stoops, fencing and similar structures may be located within the front setback area. No parking is allowed in the front setback.

H. Commercial Entries
Main entrances shall be located along street front facades and shall incorporate architectural features that draw attention to the entrance. These features may include covered porches, porticos, recessed doorways and awnings. Commercial entries shall be flush with the exterior grade.

I. Site Access
No parcel may have more than one driveway on a Corridor Street.

J. Service and Loading Areas
Building service and loading docks shall be located to the rear of a building and shall not face public streets, parks or public gathering spaces. Service and loading docks shall incorporate effective techniques for visual and noise buffering from adjacent uses, using means such as fencing, landscaping or decorative screening. Garages and garage doors are prohibited on the front façade of a building in the VM zone. This requirement shall not prelude allowance for temporary loading zones along village streets, where appropriate.

K. Garage Location
Garages, both attached and detached, shall be subordinate in size, height, and location to the principal building and shall be located behind the front façade of the principal building.

L. Exterior Materials
Industrial materials such as unfinished concrete, sheet metal, vinyl and plastic synthetic siding are prohibited along streets and public areas.

M. Roof Mounted Equipment
Equipment mounted on roofs shall be screened from public view by the use of architecturally compatible materials or grouped at the rear of the structure where visibility is limited.

N. Landscaping
Landscaping shall incorporate Low Impact Development (LID) techniques described in Section 3 - Design Guidance and in accordance with the parking lot design requirements in §325-124 F(3). Landscaping shall incorporate measures to reduce potable water use for landscape irrigation and maintenance needs through use of drought tolerant species and efficient irrigation design. General stormwater for all roadways and parking areas shall be managed and infiltrated on site, close to the source, to minimize runoff and maximize water quality treatment.

O. Street Trees
New development shall provide a minimum of one 3" caliper tree per 50' of building frontage, to be planted in greenways (if applicable) or in the sidewalk area. Trees shall be planted at the same spacing as existing trees or at 40-foot intervals if there are no existing trees. Where necessary, spacing exceptions may be made to accommodate curb cuts, fire hydrants, and other infrastructure elements, but exceptions shall not deviate from the street standard any more than is necessary.

P. Lighting
Internally illuminated signs are prohibited. All exterior lighting other than municipal street lighting shall use full cut-off fixtures. Light poles shall not exceed 15 feet in height. Light spill shall not extend onto adjacent properties.

Q. Bicycle Parking
A minimum of one Bicycle Parking Space shall be provided for each 10 off-street automobile parking spaces. All bicycle parking spaces shall be provided in the form of Bicycle Racks with locking capability.

§325-123 EHVC Site Plan Approval

Except where noted otherwise, this section replaces §325-55 and Chapter 400 for site plan review of proposed uses in the EHVC.

A. Purpose
The purpose of Site Plan Approval is to provide for detailed review of proposed development in the EHVC that could impact the visual character, environment, and traffic flow of the area. The Site Plan Approval process allows the Planning Board to ensure that proposed projects meet the requirements of Article XX.

B. Applicability
The following types of development require Site Plan Approval by the Planning Board:

1. Construction, exterior alteration or exterior expansion of, or change of use within, a non-residential use.
2. Construction, exterior alteration or exterior expansion of, or change of use within, a residential use with 3 or more dwelling units.
3. Under §325-123F the Planning Board may vote to waive an applicant's need to submit an application for site plan review if the board finds that the proposed changes to the site are minimal and do not require site plan review.
4. Applications that require a special permit shall also include a site plan, and in such cases site plan review and special permit review shall occur as a single development approval review and approval process under the rules and procedures for special permits.

C. Level of Review

1. Level 1. Level 1 review is intended as a simplified submittal which does not necessitate professional preparation of application materials. Level 1 submittals apply to any application for an addition of less than [2,000] square feet gross floor area to an existing structure with less than 10 new parking spaces. An applicant may request and the Planning Board may grant permission for a Level 1 submission for larger projects through a pre-application review (See Section 325-123 D).
2. Level 2. Level 2 review is intended as the standard submission and requires preparation of plans by a licensed professional.

D. Pre-Application Review

Applicants are encouraged to submit a pre-application sketch to the Town Planner and schedule a Pre-Application Review meeting with the Planning Board prior to investing in extensive professional design efforts for site plans. Such preliminary review may help identify general approaches and allow for exploration of potential problems at an early stage. Sketches, which need not be professionally prepared, are intended to initiate the discussion and do not need to show all of the information required for a formal site plan application. At this review, the Planning Board may vote to waive the applicant's need to submit an application for site plan review in accordance with 325-123B.(3) or may waive certain submission requirements in accordance with 325-123H.

E. Procedures

1. Applicants for site plan approval for uses allowed by right shall submit 10 copies of the site plan to the Planning Board for review. The Planning Board shall review and act upon the site plan, with any conditions deemed appropriate, within 30 days of its receipt of a plan submitted under §325-123 C(1), Level 1, or within 45 days of its receipt under §325-123 C(2), Level 2 and shall notify the applicant of its decision within 2 business days of the decision. The decision of the Planning Board shall be a by vote of a majority of those present at a meeting and shall be in writing. No building permit or certificate of occupancy shall be issued by the Building Commissioner without written approval of the site plan from the Planning Board, or unless 45 days lapse after the date of submittal of the site plan without action from the Planning Board. A site plan application for a use allowed by right may only be denied if the Planning Board finds that it does not comply with the provisions of Article XX or other applicable provisions of the Zoning Bylaw or that it lacks sufficient information to make such a finding, as provided in subsection (I) below.
2. Application for a Building Permit. An application for a building permit to perform any of the activities listed under §325-123B allowed as-of-right shall be accompanied by an approved site plan.
3. Application for a Variance. A variance granted for an activity listed under §325-123B shall contain the following condition: The work described herein may not commence without the approval of a site plan by the Planning Board pursuant to §325-123 of the Zoning Bylaw.
4. The Planning Board shall consolidate its site plan review and special permit procedures for proposals that require both Site Plan Approval and Special Permit authorizations.
5. An extension to the time limits set forth herein may be granted by majority vote of the Planning Board.
6. No deviation from an approved site plan shall be permitted without modification thereof by site plan amendment, which shall be reviewed and approved according to the procedures in this subsection E.

F. Coordination With Other Boards

The Planning Board shall forward any site plan submitted under §325-123 C(2), Level 2 site plan to the Board of Health, DPW Director, Building Commissioner, Conservation Commission, and Fire Chief for their advisory review and written comments. Failure to respond within 14 days shall indicate approval by said agency. The Planning Board shall explain any departure from written recommendations in its written decision.

G. Contents of Plan

1. Level I. A site plan shall be submitted that accurately and in detail acceptable to the Planning Board shows all relevant site conditions and proposed changes. Dimensions and scales shall be adequate to determine whether all requirements are met. The plan may be prepared by the applicant, however, the Planning Board may require the submission of information prepared by a licensed professional if the Board determines that such information is necessary to make an informed deci-

sion. Such determination shall require a quorum present and a motion carried by a majority of the Board members present. Plans shall show the following, unless waived by the Board:

(a) Boundary line information pertaining to the land sufficient to permit location of same on ground.
(b) Dimensions and locations of all existing and proposed structures.
(c) General description of the existing topography, including any proposed grading changes.
(d) Parking, loading areas, access and egress provisions.
(e) Storm drainage, including direction of flow and means of ultimate disposal.
(f) Provisions for sanitary sewerage and water supply, including fire protection measures.
(g) Location of all utilities, signage, lighting, outdoor storage and trash disposal areas.
(h) Existing and proposed planting, landscaping and screening.
(i) Wetlands
(j) All easements, restrictions and covenants.
(k) Compliance with all applicable provisions of this article and copies of any previously issued variances or special permits running with the property.

2. Level 2. Level 2 site plans are subject to all submittal requirements listed in Harwich Subdivision Code Section §400- Appendix 4a, (Requirements for Application, Special Permit and Site Plan Review) and shall be prepared by a licensed architect, landscape architect, engineer or land surveyor unless the Planning Board in accordance with §325-123H determines that certain plan requirements are not necessary to provide and may be waived.

H. Waiver of Submission Requirements
The Planning Board may, upon written request of the applicant, waive any of the requirements of this section where the proposed project involves relatively simple development plans.

I. Approval
Site Plan approval shall be granted upon determination by the Planning Board that the requirements listed in 325-123 I (1-2) have been satisfied. The Planning Board may impose reasonable conditions to ensure compliance with these requirements. The Planning Board may deny approval of a site plan for a use allowed by right only on the grounds that the application materials or plan contents required under this Section 325-123G have not been submitted and/or were not submitted at the appropriate time. An approved site plan must:

1. Comply with the requirements Article XX of the Harwich Zoning By-Law, including parking and landscaping and all mandatory design guidelines;
2. Maximize pedestrian and vehicular safety on the site and provide safe access and egress from it.

§325-124 EHVC Off-Street Parking Requirements.

A. Purpose
The EHVC Parking Requirements are intended to balance the need for adequate parking for uses within the district with the need to minimize harm resulting from the provision of parking, and to avoid the negative impacts of excessive parking lot construction.

B. Applicability
No building permit or certificate of occupancy shall be issued for the construction of a new building, the increase in net floor area of an existing building, or the change from one land use to another, unless parking spaces are provided in accordance with the parking requirements of this bylaw. Non-conforming parking lots shall be brought into conformity with the requirements of this Section 325-124 whenever a Site Plan or Special Permit application is filed for an expansion or change of use.

C. Review Procedure

The Planning Board, through Site Plan Approval or Special Permit review, shall determine compliance with the requirements of this section. The Building Commissioner shall determine compliance with the requirements of this section for development that is not subject to Site Plan Approval of Special Permit review.

D. Minimum Parking for Residential Uses

Single Family and Two-Family Dwellings	1.5 space per unit
Multi-Family Dwellings	1.0 space per unit
These requirements may be reduced for dwelling units with less than 1,000 s.f. net floor area, senior citizen housing, mixed use development, or other appropriate circumstances if the Planning Board determines that such reductions are warranted.	

E. Parking Requirements for Non-residential Uses

1. The number and layout of parking spaces shall be based on the need to protect public safety and convenience while minimizing harm to the character of the community and to environmental resources. Since non-residential uses vary widely in their need for parking, off-street parking requirements shall be based on the specific operational characteristics of the proposed uses. The provisional parking standards in §325-124 E(2) below shall be applied and may be varied by the Planning Board according to the criteria in Subsection §325-124 E(3) below.

2. Provisional Parking Standards

Land Use	**Number of Spaces**
Retail or service business uses	3 per 1,000 s.f. enclosed floor space, excluding space for storage
Art Gallery	2 per 1,000 net floor area
General Office	3 per 1,000 s.f. net floor area
Medical Office	4 per 1000 sf. net floor area
Lodging Facility	1 space per bedroom plus 1 space for each non-resident employee and 1 space for every 200 s.f. of floor space for meetings and functions.
Nursing Home	1 per 3 beds/units
Restaurants, theaters, and other places of public assembly	1 for every 3 seats
Food stores and supermarkets	3 per 1,000 s.f. enclosed floor space, excluding space for storage
Personal Services	3 per 1,000 s.f.
Day Care Centers	1 per 4 children @ max capacity
Museums and Libraries	2 per 1,000 s.f.
Public and Private Educational Institutions	1 per 3 seats in classroom
For uses not listed in this table the parking standards shall be based on similar uses and as appropriate to circumstances.	

3. Criteria for Applying Provisional Standards

In applying or modifying the provisional parking standards for any proposed use, the Planning Board or Building Commissioner shall consider:

(a) The maximum number of vehicles that would actually be parked at the use at times of peak usage. Parking spaces shall be sufficient to satisfy 85% of the anticipated peak demand. The likelihood of people walking, bicycling, or carpooling to the proposed use shall be taken into consideration.

(b) The size of the structure and the site.

(c) The environmental or scenic sensitivity of the site (including applicable limitations on impervious surfaces). In cases where sufficient area for parking cannot be created on the site without disturbance to these resource values, the Planning Board may require a reduction in the size of the structure so that available parking will be sufficient.
(d) The availability of safely usable on-street parking.
(e) The availability of off-site off-street parking within 500 feet that is open to the public, owned or controlled by the applicant, or available on a shared-use basis, provided that the applicant dedicates such off-site land for public parking or demonstrates a legal right to shared use.
(f) The requirements for parking fore the disabled as prescribed by the Americans with Disabilities Act.

4. Set-Aside for Future Parking
The Planning Board may, as a condition of reducing the minimum parking standards, require an applicant to set aside land to meet potential future parking needs. Such land may remain in its natural state or be landscaped, but may not be used in a manner that would prevent it from being developed for parking in the future.

F. Parking Lot Stormwater Management

1. LID techniques including vegetated swales, rain gardens or bioretention facilities, permeable pavers, infiltration facilities and Best Management Practices shall be incorporated into parking lot design to enhance stormwater management and reduce impacts.

2. The Planning Board shall require that all applicable LID Parking Area Design criteria listed in Subsection 3(a) are followed unless it finds, upon petition from the applicant, that the successful implementation of a LID parking area design is infeasible or would impose an undue hardship on the applicant. Where the Planning Board makes such a finding, the requirements of Section §325-124 F(4) Conventional Parking Lot Design shall apply. Evidence that may be used by an applicant to demonstrate the infeasibility of implementing LID techniques on a site may include, without limitation:
(a) The presence of subsurface geologic conditions such as large quantities of poor fill;
(b) Applicant does not own existing lot to be used for off-site parking allowances;
(c) The presence of soil contamination; and/or
(d) Existing topography or site geometry.

3. LID Parking Area Design Criteria
(a) Applicants shall provide the following information for LID parking lot design. This information shall be prepared by a Massachusetts registered Professional Engineer and shall comply with the design and implementation guidelines provided in the latest version of the Massachusetts DEP Stormwater Management Manual. Where portions of the parking lot are not using LID techniques, the standards for Conventional Parking Lot Design in Section 325-124 F(4) shall apply.

1) Delineation of all drainage areas inclusive of areas outside of the parking envelope that will contribute stormwater runoff to the parking area;
2) Proposed topography at two-foot contour intervals;
3) Site Plan showing drainage pathways and locations of proposed Best Managements Practices (BMP);
4) Typical profiles of BMPs;
5) Sizing calculations for BMPs that demonstrate adequate conveyance and/or water quality treatment of the first half inch of stormwater runoff from impervious surfaces;
6) Sizing calculations for BMPs that illustrate proposed management of runoff resulting from 2-year, 10-year, and 100-year event;

7) List of plantings associated with vegetated BMPs;
8) Location of areas reserved for snow storage;
9) Location of any screening between residential and non-residential properties. Buffer zones shall be a minimum of [six (6) feet] in width and shall substantively screen the site from view through the use of evergreen vegetation at least six feet in height. Fences may be used as part of screening but shall not include chain link fences. These requirements shall not apply to non-residential or mixed use development that are designed to integrate existing or future neighboring residences into the site through the use of walkways, bicycle paths or other pedestrian amenities.
10) Location of test pits, depth to seasonal high ground water and soil percolation rates for those areas designated for recharge;
11) An Operation and Maintenance (O&M) Plan shall be submitted by the applicant to the Building Commissioner or Planning Board that conforms to the standards for O&M Plans detailed in the Massachusetts DEP Stormwater Management Manual.

4. Conventional Parking Area Design Criteria
Where the Building Commissioner or Planning Board has found that LID parking area design is infeasible or would impose an undue hardship on the applicant in accordance with Section 325-124 F(2), parking areas shall comply with Section 325-42(J) of the Harwich Zoning Bylaw and also meet the following requirements:

(a) Buffer area. Landscaping shall be required between non-residential uses or mixed-use developments and existing or future residential development areas. Buffer zones shall be a minimum of [twelve (12) feet in width and shall substantively screen the site from view through the use of evergreen vegetation at least six feet in height. Fences may be used as part of screening but shall not include chain link fences or fences greater than 3 feet in height. These requirements shall not apply to non-residential or mixed use development that are designed to integrate existing or future neighboring residences into the site through the use of walkways, bicycle paths or other pedestrian amenities.

(b) For lots with 10 spaces or more, at least 10% of the parking lot shall be landscaped open space.

5. Landscaping
All parking areas shall be designed to avoid long, uninterrupted rows of vehicles by breaking them into separate parking lots divided by tree lines, alleys, pedestrian areas, or buildings. Parking lots containing more than 40 spaces shall be divided into smaller areas by landscaped islands at least 15 feet wide located no more than 120 feet apart. All islands shall be planted with 3-inch minimum caliper shade trees at a density of at least one tree for every 20 linear feet of island. Parking lots containing less than 40 spaces shall provide at least one 3-inch minimum caliper shade tree per 8 spaces.

6. Lighting
Lighting for parking lots shall comply with Section 325-122 (P).

7. Pedestrian Access Design Standards
Provision for safe and convenient pedestrian access shall be incorporated into landscaping plans for any parking area with 20 spaces or more. This shall be clearly shown on all site plans. Any parking lot designed, constructed, and maintained, as part of a development must be designed such that the flow of pedestrians can be directed through a system of safe and convenient routes

that bring them to central walkways leading to main entrances. All walkways shall be constructed to provide for:

(a) Safe separation of all walkways from motor vehicle traffic through the use of raised sidewalks and/or landscaping between sidewalks and parking spaces and/or driving aisles.
(b) Safe, well-articulated pedestrian crossings demarcated with pavement markings, pedestrian warning signs, and lighting.
(c) A minimum width of 4 feet.
(d) Inclusion of plantings, benches, and lighting along walkways and at all pedestrian crossings.

§325-125 Natural Resource Protection District (NRP)

A. Purposes.

1. The purposes of this Section 325-125 are to protect water resources and the watersheds that contribute to and affect those resources. The water resources to be protected include Pleasant Bay, which is a state designated Area of Critical Environmental Concern and for which regulatory thresholds for total nitrogen from watershed sources have been issued by the Massachusetts Department of Environmental Protection and certified by United States Environmental Protection Agency; water resources within the area mapped as the Six Ponds District of Critical Planning Concern (DCPC); and drinking water supplies. This section is also intended to protect large areas of contiguous wildlife and plant habitat within the Pleasant Bay watershed and the Six Ponds DCPC, to foster compact development patterns that reduce infrastructure needs and protect open space resources, and to create a greenbelt around the Village Center of East Harwich. The Natural Resource Protection District (NRP) is an integral part of an overall "smart growth" strategy that focuses development in the East Harwich Village Center (EHVC) and protects open space land in the surrounding area.

2. This Section is intended to implement the vision described in the EHVC Handbook, as adopted by the Planning Board on [date of adoption]. In furtherance of that vision, the NRP provides for a Transfer of Development Rights (TDR) program described in Section 325-125K.

3. This Section also implements the goals of the Harwich Local Comprehensive Plan, adopted by the Planning Board on [date], which recommends Natural Resource protection zoning and TDR in Section 3.3,("Natural Assets"), provides in Chapter 5, "Growth Management Locations, for a new traditional village center in East Harwich, and states in Objective 5.3 that the Town should adopt new zoning provisions that direct most new growth to the village center in East Harwich and protect open space in the surrounding area.

4. The NRP district fosters compact development patterns using flexible regulations for density and lot dimensions, permitting development rights to be transferred to the most appropriate locations for development, and encouraging creativity in neighborhood design. By reducing the potential for future nitrogen loading in the watershed and encouraging more efficient and cost-effective use of infrastructure, the NRP district supports the Town's nutrient management planning objectives and contributes to the achievement of total nitrogen loading limitations for Pleasant Bay. It also reduces development impacts on surface and ground water, forests, farmland, wildlife habitats, large tracts of contiguous open space, environmentally sensitive areas, steep slopes, scenic views and historically and culturally significant areas. This section also results in less impervious surface compared to conventional large lot subdivisions.

5. To encourage such compact development, only development configurations that meet the standards in this Section 325-125 are allowed by right, subject to the procedural requirements of the Regulations Governing the Subdivision of Land.

B. Applicability.

1. The regulations in this Section apply to all land zoned NRP on the Harwich zoning map, and in particular, for all subdivisions of land as defined in Massachusetts General Laws Chapter 41, Section 81L. Such subdivisions shall be permitted by right under the Town of Harwich Subdivision Regulations, provided that they comply with this Section.

2. Development in the NRP that does not require approval as a subdivision pursuant to Section 400-9 of the Harwich Subdivision Regulations (i.e. ANR development) is allowed by right subject to ANR plan endorsement by the Planning Board, provided that the minimum road frontage is 200 feet. No building permit may be granted for the construction of a residence on a lot so endorsed unless its lot area is five acres or more and it has received Level 1 site plan approval pursuant to Section 325-123C(1). This provision shall not prevent any applicant from submitting a subdivision plan for land that would otherwise qualify for ANR endorsement in compliance with this Section 325-125B(2). Such subdivision shall be permitted by right without any requirement of site plan approval for individual buildings.

3. This Section does not apply to the construction of homes or businesses on individual lots that existed prior to the effective date of this section of the by-law.

4. A special permit is required for any subdivision that does not conform to the by-right development requirements herein. In order to approve such special permit, the Planning Board must find that the proposed alternative plan advances the goals of the NRP District as well as or better than a by-right plan. If the Planning Board determines that the land with the greatest natural resource value (as established by the natural resource analysis required in subsection C below and in the Subdivision Regulations) cannot be protected except by the use of a by-right plan, the Planning Board shall deny the Special Permit for the deviation and require the applicant to submit a plan that complies with the by-right requirements of the NRP District as provided in this Section 325-125.

5. If the proposed development involves one or more common driveways, density bonuses, and/or any alternative configuration which deviates from the requirements of this Section as provided in subsection (4) above, the proceedings for any required Special Permits shall occur in one consolidated Special Permit proceeding before the Planning Board.

C. Natural Resource Analysis and Findings

In order to enable the Planning Board to determine whether or not a proposed by right subdivision or development by Special Permit that deviates from the requirements for the NRP District satisfies the purposes and standards of this article, an applicant must present sufficient information on the environmental and open space resources for the Planning Board to make such determination. The required information shall be provided in the form of a “natural resource analysis” submitted by the applicant and “natural resource findings” made by the Planning Board, as described in Subsection 400- 25 of the Subdivision Regulations. In the case of a lot created by a land division that is not a subdivision (i.e. an ANR), the Planning Board may require the submission of all or part of a natural resource analysis, as described in the Subdivision Regulations, as part of its subsequent site plan review. The preferred time of submittal of the Natural Resource Analysis is prior to filing a formal application for subdivision. However, if the applicant does not provide the Natural Resource Analysis prior to such application, the analysis shall be required to be filed no later than the application for a preliminary plan.

D. Minimum Preserved Open Space

The plan shall show that at least 75 percent of the total acreage on a parcel proposed for development will be preserved by conservation restriction. The specific location of the area to be preserved by conservation restriction shall be based upon the natural resource findings.

E. Allowable Residential Units

The maximum number of residential dwelling units in the NRP District is calculated by a formula based upon the net acreage of the property. This formula is intended to take into account site-specific development limitations that make some land undevelopable or less developable than other land. This calculation involves two steps, calculating the net acreage and then dividing by the base allowed density (i.e. number of acres required per dwelling unit).

1. Net Acreage Calculation

   The factors listed below are used for net acreage calculation purposes only, and do not impose any additional regulatory constraints on the location of development that are not included in other applicable provisions of law, including this zoning bylaw. To determine net acreage, subtract the following from the total (gross) acreage of the site:

   (a) half of the acreage of land with slopes of 20% or greater (2000 square feet or more of contiguous sloped area at least 10 feet in width);
   (b) the total acreage of lakes, ponds, FEMA 100-year floodplains, and all coastal and/or freshwater wetlands as defined in Chapter 131, Section 40 of the General Laws, as delineated by an accredited wetlands specialist and approved by the Harwich Conservation Commission through an Abbreviated Notice of Resource Area Delineation (ANRAD); and
   (c) the total acreage of land subject to easements or restrictions prohibiting development.

   For purposes of calculating the acreage of wetlands, applicants shall use the Field Data Form found in Appendix G of the Massachusetts DEP Handbook "Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act" (1995) (the "Wetlands Handbook"). The complete form shall be submitted including all methods of determination, i.e., vegetation, soil, and any other indicators, as provided for on the form. If detailed vegetative assessments are not required by the Wetlands Handbook for a particular site, the reasons must be noted on the Field Data Form. At the Planning Board's discretion, any of the information described above may be taken from current geographic information systems data available from the Massachusetts Department of Environmental Protection, Mass GIS, and other credible sources including delineations registered by the use of global positioning systems. The Conservation Commission may request more detailed information for potentially more sensitive areas.

2. Unit Count Calculation

   To determine the base maximum number of allowable residential dwelling units on the site, divide the net acreage by a base density of five (5) acres per unit to establish the "base unit count." Fractional units of less than .5 shall be rounded down and .5 or more shall be rounded up.

3. Permitted Bonuses

   The base unit count may be increased through density bonuses designed to advance important goals of the NRP District. Density bonuses are given by Special Permit at the discretion of the Planning Board based upon the expected public benefit. Fractional units shall be rounded up or down as in (2) above. Density bonuses may only be used if the resulting development complies with Title 5 of the State Environmental Code as determined by the Board of Health. The maximum permitted bonuses shall not result in more dwelling units than would be permitted if the maximum density as calculated pursuant to subsection (2) above were 40,000 square feet per

unit, except that within the Six Ponds Special District, Zone A, the maximum density shall be 60,000 square feet per unit, and within the Six Ponds Special District, Zone B, the maximum density shall be 100,000 square feet per unit. The following are permitted bonuses:

(a) Water Resources Bonuses (maximum of 40% bonus for this category)
   i) If the applicant connects preexisting development serviced by Title 5 septic systems to the new development's advanced wastewater treatment system, the applicant may be permitted one additional unit for every three existing units so connected.
   ii) If the applicant proposes to use an advanced wastewater treatment system that achieves a more stringent target nitrogen reduction than currently required by the Board of Health , the applicant may be permitted a bonus of up to 10% depending upon the extent of nitrogen reduction

(b) Open Space Bonuses (maximum 45% bonus for this category)
   i) If the applicant preserves as permanent open space more than the minimum required percentage of 75%, the applicant may be permitted a 10% bonus per additional 5% of the parcel preserved as open space.
   ii) If the applicant allows deeded public access to the open space portion of the property and the Planning Board finds that such public access provides a significant recreational benefit to the Town (such as access to an important natural area or a trail system), the applicant may be permitted a maximum of 25% bonus depending upon the significance of the benefit to the Town. Any bonus granted for public access to open space land shall not compromise the conservation value of such open space land, based upon the natural resource findings of the Planning Board. Special consideration shall be given to providing access on trail, greenway, and bikeway corridors identified by the Town.

(c) Other Bonuses (maximum 15% for this category, at the discretion of the Planning Board)
   i) Where the proposal is a planned development that includes approval of specific buildings and site plans as part of the subdivision approval process (as opposed to approval of only roads and building lots), the Planning Board may grant a bonus for low impact development and/or renewable energy components, including but not limited to bioretention, rain gardens, xeriscapes, vegetated swales, pervious pavement, green roofs, solar panels, or wind turbines, provided that the Planning Board limits the location and size of renewable energy components to ensure that they do not create any adverse impacts on the residents and the surrounding area.
   ii) The Planning Board may grant a bonus for a provision in the Conservation Restriction (required by Subsection I) restricting an area of 5 acres or more for agricultural use, or an area of 1 acre or more for community gardens open to the public. The area provided may be contained within the required open space. For a community garden, the applicant shall be required to install an adequate water supply for irrigation, which may be collected on-site rainwater and/or Town water.

F. Types of Residential Development

The allowable residential units may be developed as single-family or two-family dwellings, provided that the number of dwelling units does not exceed the allowable unit count in Subsection E above. Any application involving two-family dwellings shall include a site plan that shows the location, layout, height, and setbacks of such dwellings.

G. Dimensional and Design Requirements

1. Minimum Lot Sizes in NRP

   The limiting factor on lot size is the need for adequate water supply and sewage disposal. Therefore, there is no required minimum lot size for zoning purposes. This does not affect the powers of the Board of Health to require minimum lot area for the disposal of sewage and the protection

of water supply. All dwellings must comply with applicable Board of Health requirements. [Does Harwich BOH calculate allowable area for septic in the aggregate?]

2. Setbacks, Road Frontage, and Road Requirements
   The minimum setback shall be 10 feet from any property line except that, when the lot line is the exterior line of the subdivision, the setback shall be 25 feet. There shall be no minimum requirement for road frontage for subdivisions in the NRP District, provided that each lot has legal and adequate vehicular access to a public way or a way approved under the Subdivision Rules and Regulations across its own frontage or via a shared driveway. The Planning Board may modify the applicable road construction requirements for new roads if it finds that such modifications will be consistent with the purposes of the NRP District

H. Arrangement of Lots

1. The Planning Board shall take into consideration the natural resource analysis and findings in approving the arrangement of lots. Lots shall be located and arranged in a manner that:
   (a) Protects ponds and other surface waters;
   (b) Protects groundwater;
   (c) Protects views from designated scenic roads;
   (d) Protects wildlife habitat and corridors;
   (e) Protects farmland and open fields;
   (f) Protects large intact forest areas;
   (g) Protects and maximizes areas of contiguous undeveloped land;
   (h) Protects and buffers existing protected open space areas;
   (i) Protects steep slopes;
   (j) Protects other sensitive environmental resources
   (k) Facilitates pedestrian circulation and the establishment and extension of a network of greenways, trails, and bikeways.

2. Lot, roadway, and driveway layouts, land alterations, and placement of structures shall follow, to the extent feasible, any design guidelines for the NRP which may be adopted by the Planning Board through its Subdivision Rules and Regulations or as part of the EHVC Handbook.

I. Permanent Open Space

Open space set aside in the NRP District shall be permanently preserved from development as required by this Section I. Such permanent preservation shall require compliance with all three subsections (1, 2, and 3) below. The Planning Board shall not require such open space land to be accessible to the public, unless a density bonus for such access is allowed under §325-125 E3(b)(ii). Any development permitted in connection with the setting aside of open space land shall not compromise the conservation value of such open space land, based upon the natural resource findings of the Planning Board. Such open space shall remain in a natural and undisturbed state unless otherwise permitted by the Planning Board. Trails and other passive recreation activities shall be permitted within such open space areas.

1. Permanent Preservation of Open Space Land
   (a) All land required to be set aside as open space in connection with development in the NRP District shall be so noted on any approved plans.
   (b) If the land is not conveyed to the Town as provided in 2(a) below, it shall be protected by a permanent conservation, watershed, or agricultural preservation restriction that satisfies the requirements of M.G.L. Chapter 184, Section 31, to be held by the Town of Harwich Conservation Commission, the Commonwealth of Massachusetts, or a non-profit conservation organization qualified to hold conservation restrictions under Chapter 184, Section 31 and tax-deductible conservation restrictions under Section 170(h) of the Internal Revenue Code. The restriction shall be approved by the Board of Selectman and the state agency with juris-

diction over it and shall specify the permitted uses of the protected open space land. In the event that no organization or public body is willing to hold the restriction, the Town of Harwich shall hold the restriction. In order to enhance the likelihood that there will be a willing holder, the applicant shall be given a list of qualified holders and shall be encouraged by the Planning Board to consult with potential holders of the restriction in the course of the natural resources analysis.

(c) The restriction may permit, but the Planning Board may not require, public access or access by residents of the development to the protected open space land, except that public access may be required if the Planning Board has granted a density bonus under §325-125 E3(b)(ii).

(d) The boundaries between the permanent open space and the developable areas shall be clearly marked with concrete bounds to prevent encroachment into or disturbance of the open space area.

(e) The restriction shall provide for periodic inspection of the open space by the Town, and by the holder of the CR if different from the Town. Such restriction shall be submitted to the Planning Board prior to endorsement of the plan and covenant for the project and recorded at the Registry of Deeds/Land Court prior to endorsement of the definitive subdivision plan. The Planning Board may require a management plan that describes how existing woods, fields, meadows or other natural areas shall be maintained in accordance with the natural resource analysis and good conservation practices.

2. Ownership of Open Space Land

At the developer's option and subject to approval by the Planning Board, all areas to be protected as permanent open space shall be:

(a) Conveyed to the Town for the protection of natural resources and placed under the care, custody and control of the Conservation Commission in perpetuity. Land conveyed to the Town shall be open for public use and limited to open space and passive recreational use; or

(b) Conveyed to a state or federal agency that holds land for conservation purposes for open space and passive recreation; or

(c) Conveyed to a nonprofit organization, the principal purpose of which is the conservation or preservation of open space, with a conservation restriction granted to the Town or a different nonprofit organization, as specified in Subsection (1) above. Such organization shall be acceptable to the Planning Board as a bona fide conservation organization; or

(d) Conveyed to a corporation or trust owned or to be owned by the owners of lots or residential units within the development (i.e. "homeowners association"). The documents which form said association are subject to approval by the Planning Board and shall require that all real property taxes on the open space land shall be assessed ratably against each property owner. If such a corporation or trust is utilized, as indicated herein, ownership thereof shall pass with conveyance of the lots or residential units. The developer is responsible for the maintenance of the open space and other facilities to be held in common until such time as the homeowners association is capable of assuming such responsibility. Thereafter, the members of the association shall share the cost of maintaining the open space. The Planning Board shall require the applicant to provide documentation that the homeowners association is an automatic (mandatory) association that has been established prior to the conveyance of any lots within the subdivision; or

(e) Held in private ownership (whether by the applicant or another owner or owners), provided that the Planning Board finds that if the disposition divides the open space among two or more large parcels, such disposition will not fragment the resources to be protected; or

(f) A combination of the above ownership options for different portions of the protected land, as appropriate based upon the natural resource analysis.

3. Maintenance of Protected Open Space. Ongoing maintenance standards shall be established as a condition of development approval to ensure that the open space land is not used in violation of the Conservation Restriction or for storage or dumping of refuse, junk, or other offensive or hazardous materials.

J. Encumbrances

All areas to be set aside as open space shall be conveyed free of any mortgage interest, security interest, liens or other encumbrances. Certification of said condition by a qualified title examiner shall be provided to the Planning Board at the time of conveyance.

K. Transfer of Development Rights

The Town of Harwich encourages flexibility in the location and layout of development, within the overall density standards of this Zoning Bylaw. The Town therefore will permit residential density to be transferred from one parcel (the "sending parcel") to another (the "receiving parcel") under the conditions specified below. Transfer of Development Rights (TDR) may only be permitted from sending parcels in the NRP district to receiving parcels located in the VR, VM, and CC districts. If a sending parcel is located in both the NRP and another district, only those portions of sending parcel that lie within the NRP District may be considered in determining the number of units allowed to be transferred. The process of transfer of development rights is as follows:

1. Procedure
   (a) All transfers require a Special Permit from the Planning Board.
   (b) The Special Permit application for TDR shall be signed by the owners (or their authorized representatives) of both the sending and receiving parcels.
   (c) The Special Permit application shall show a proposed development plan for the receiving parcel (subdivision and/or Site Plan) and shall demonstrate compliance with the provisions of §325-121.
   (d) For the sending parcel, the applicant may calculate the allowable number of units eligible to transfer by either: (1) calculating the net acreage pursuant to §325-125 E(1) and dividing by a base density of 2.5, or (2) by dividing the total (gross) acreage by 5.
   (e) Sending parcels existing as such on [date of enactment] may have development rights calculated by either method d(1) or d(2) at the applicant's election. Sending parcels which have been created or modified by lot line changes since [date of enactment] must employ method (1).
   (f) Fractional units of less than .5 shall be rounded down and .5 or more shall be rounded up. The density calculation for the sending parcel shall not include any of the bonuses available under §325-125 E(3).
   (g) The Planning Board shall determine the maximum number of units permitted with TDR on the receiving parcel under the provisions of §325-121 and the number of residential units which may be transferred from the sending parcel(s) pursuant to §325-125 K(1)(d).
   (h) The Planning Board may then grant a Special Permit allowing the transfer to the receiving parcel of some or all of the allowable residential units from the sending parcel(s) to the receiving parcel(s).
   (i) As a condition of approval of the TDR, a conservation restriction on the sending parcel(s) satisfying the requirements of §325-125 I shall be executed and recorded in the Registry of Deeds. The conservation restriction shall require that the total area of land used in the calculation required under §325-125 K(1)(d) above be permanently restricted. (For example, if five units are transferred and the calculation is according to §325-125 K(1)(d)(2), at least 25 acres of the sending parcel would have to be permanently restricted.). Those portions of the sending parcel(s) not required to be subject to the conservation restriction may be developed and used in accordance with this Section 325-125 and other provisions of the zoning bylaw.

2. Findings Required

The Planning Board shall not approve any TDR unless it finds that:

(a) All requirements for the granting of a Special Permit have been satisfied.

(b) The addition of the transferred units to the receiving parcel will comply with applicable limits on residential density, including bonuses and TDRs, in this Article XX.

(c) The TDR special permit will benefit the Town by protecting a substantial area of developable land with conservation value on the sending parcel(s) in a manner that furthers the purposes of the NRP District.

(d) The TDR will be consistent with the purpose and intent of the EHVC Handbook.

§325-126 Inclusionary/Affordable Housing Requirement.

Any development that results in the creation of 8 or more dwelling units or lots shall provide 1 dwelling unit or lot as deed restricted Affordable for every 8 dwelling units or lots created, in accordance with Section 325-DXX [placeholder].

1. Provision of Units [required on-site or off-site but within EHVC].
2. Preservation of Affordability [Building Commissioner and/or Planning Board in consultation with Housing Authority].

§325-127 Definitions

The following terms shall apply to the EHVC:

Accessory Apartment Unit – A secondary dwelling unit established in conjunction with and subordinate to a single family dwelling or business located on the same lot, whether contained within or detached.

Alley – A public or private way 20 feet or less in width that is designed primarily to provide secondary access to abutting property.

Art Gallery – An establishment used for the display or sale of works of art or craftsmanship, with no goods produced on the premises.

Artisan Studio – a building or portion thereof used for the creation of original handmade works of art or craft items by individual artists on a single-piece basis.

Bicycle Parking Space – the location within a bicycle parking area that allows for the temporary placement of a single bicycle.

Bicycle Rack – a device or apparatus that permits a bicycle to be supported in an upright position, prevents a bicycle from being tipped over, and permits the bicycle to be temporarily secured or locked to the rack.

Building, principal – A building in which the primary use of the lot on which the building is located is conducted.

Building, Accessory – A detached building the use of which is customarily incidental and subordinate to that of the principal building and which is located on the same lot as the principal building.

Conservation Land – Areas of permanently protected open space that provide important ecological functions and may allow opportunities for passive recreational activities.

Driveway – Any private roadway providing an entrance, exit, or approach from any or to any parcel of land.

Driveway, Shared – A driveway providing access from a street to two or more properties.

Eating and Drinking Establishment – An establishment where food and beverages are prepared and sold and consumed on site primarily.

Front Setback Area – Land lying between the front façade of a building and a street right-of-way line. A corner lot may have two front setback areas.

Greens – Centrally located public open space consisting of paths, landscaping, and trees. Building frontages and streets spatially define a green.

Greenway – Areas that act primarily as corridors for pedestrians and bicyclists and enable linkages between developments.

Indoor Recreation and Amusement – Participatory-oriented recreational activities such as dance, martial arts, arts and crafts, exercise, bowling, and other pastimes conducted within an enclosed building.

Lot Coverage – The percentage of a lot covered by development that prevents or impedes the passage or absorption of stormwater. This includes but is not limited to principal and accessory structures, paved parking areas, sidewalks, streets and driveways, and permeable pavement and graveled areas.

Lot Frontage – The length of a lot line that separates a lot from the street right of way.

Low Impact Development (LID) – An approach to environmentally friendly land use planning. It includes a suite of landscaping and design techniques that attempt to maintain the natural, pre-developed ability of a site to manage rainfall. LID techniques capture water on site and let it soak into the ground where it can recharge the local water table rather than being lost as surface runoff.

Mixed Use – A development that provides a combination of residential and commercial uses in close proximity to one another or in the same building.

Off-Street Parking – Parking spaces provided outside of the right-of-way of a street or highway.

On-Street Parking – Parking spaces provided within the right-of-way of a street or highway.

Neighborhood Retail Sales or Service – An establishment having not more that 5,000 square feet gross floor area, primarily engaged in the provisions of frequently or recurrently needed goods for household consumption, such as prepackaged food and beverages, periodicals, limited household supplies, hardware drug store, or laundry services, but not including gasoline sales.

Parking Area: That portion of a lot set aside, marked, posted, or intended for parking. This includes circulation areas, loading and unloading areas, parking spaces and aisles, landscaped areas, bikeways, and walkways.

Planting Strip – The area between the street and sidewalk that accommodates street trees. Planting strips may be continuous or individual.

Pocket Park/Plaza – Small areas of open space that are accessible to the general public for passive recreation. Pocket parks incorporate landscaping with turf, whereas plazas consist primarily of hardscape.

Public Space – Outdoor areas for public use providing spaces for leisure or passive recreational opportunities. Greenways, pocket parks, public sidewalks, alternate transportation routes, and similar spaces are public spaces.

Setback – The horizontal distance between a lot line and a building.

Street, Corridor – Route 137 and Route 39

Street, Principal Village – A street connecting to Route 137 or Route 39 or to other Principal Village Streets and serving as primary access to an EHVC building.

Street, Secondary Village – A connector street that is narrower and more residential in character than a Principal Village Street and allows on-street parking on one side.

Street Enclosure – The percentage of the lot frontage occupied by a building façade.

Theater, Indoor – A building or part of a building devoted to showing motion pictures, or for dramatic, dance, musical, or other live performances.

Townhouse, Rowhouse or Attached housing – Dwelling units in a group of 2 or more, sharing a common wall or walls with neighboring. Units usually have a front and rear entrance.

Transfer of Development Rights (TDR) – A method of relocating rights to develop residential units from an area designated to be preserved as open space to a an area designated for higher intensity development. (See Section 325-125K)

Transparency – The feature of a building façade that is constructed of glass other transparent material that allows a person on the outside to see into the building.

2B: Subdivision Regulations

Article IV: East Harwich Village Center

§ 400-21 Purpose

The purpose of these subdivision standards is to provide for development of new streets, blocks, and related public infrastructure in East Harwich in a manner consistent with the goals of the Harwich Local Comprehensive Plan, the East Harwich Village Center Concept Plan, and the East Harwich Special Zoning District Provisions established in Article XX of the Harwich Zoning Bylaw.

§ 400-22 Applicability

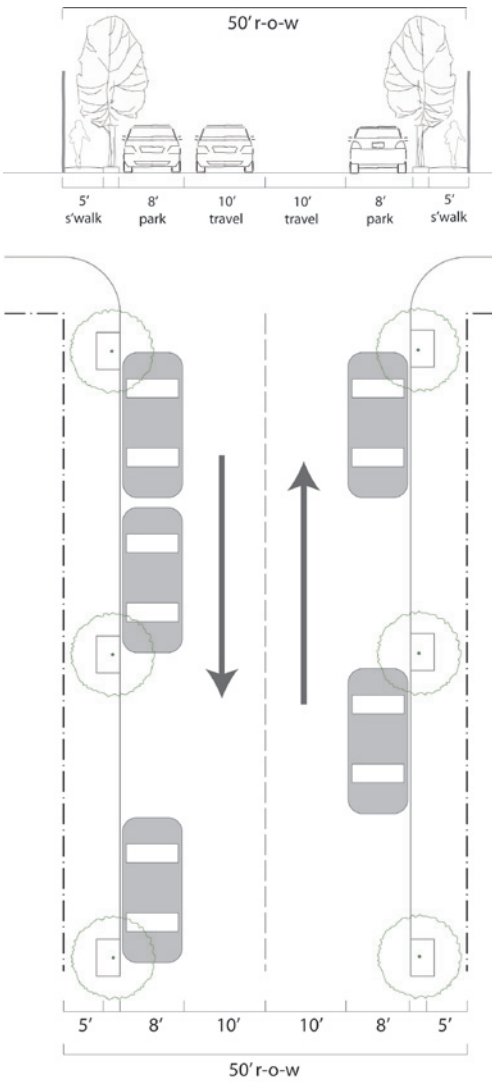
The standards in this Article IV apply to subdivisions in the East Harwich Village Center VM, VR and CC zoning districts. Other provisions of the Town of Harwich Subdivision Regulations that are consistent with the Article IV also apply within these districts.

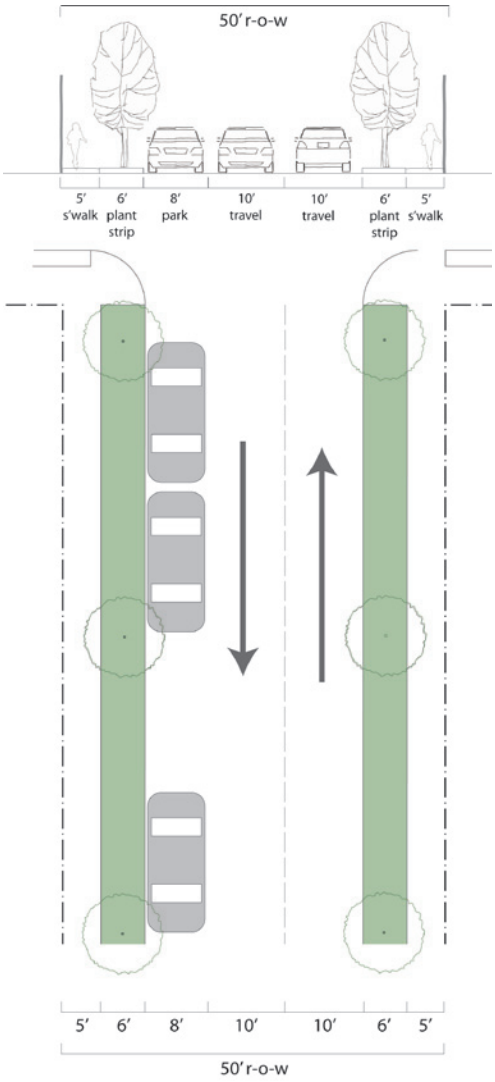
§ 400-23 Street Standards

A. All new and improved streets in the EHVC shall comply with the street standards shown in the following diagram "Street Typology and Design". Street types are as shown in the East Harwich Village Center Concept Plan, adopted by the Town of Harwich Planning Board and incorporated by reference herein simultaneously with this Article IV.

1. Principal Village Streets
2. Secondary Village Street
3. Corridor Streets (Route 137 and Route 39)

Street Typology and Design





Street Type	Principal Village Streets	Secondary Village Streets
Right of way width	50 feet	50 feet
Travel lane width	10 feet	10 feet
Lanes of travel	one lane, each direction	one lane, each direction
On-street parking	both sides	one side
Parking lane width	8 feet	8 feet
Curbing	vertical curbing	vertical curbing
Planting strip width	n/a	6 feet min.
Trees	3 inch caliper	3 inch caliper
Tree spacing	40 feet on center	40 feet on center
Sidewalk width	5 foot minimum clearance	5 foot minimum clearance

B. General Specifications for Streets and Blocks

1. All public way improvements from the back of the curb to the building façade, including landscaping, shall be in place at the time of building occupancy, weather permitting. If weather does not allow for planting at the time of occupancy, a waiver from this provision may be granted by the Planning Board subject to the appropriate performance guarantee.

2. On-street parking is required on all new streets. Parallel parking spaces along the street shall be set back from crosswalks and intersections by a minimum of 6 feet.

3. Block Size. The maximum length of a block along Corridor Streets and Village Streets shall be 600 feet. The block depth shall be a minimum of 250 feet and a maximum of 375 feet. Residential Block lengths in the VR zone should range from 300 feet to 500 feet.

4. Curb Cuts and Driveway Access. No more than two (2) one-way access drives or one (1) two-way access drive per lot may enter a Principal Village Street. Each lane of an access drive shall be no wider than 10 feet. No curb cuts or access drives may be provided within 200 feet of each other or within 200 feet of an intersection of Principal Village Streets or Corridor Streets.

5. Where feasible, rear alleys shall be provided in lieu of driveway access in order to minimize curb cuts and enhance connections between adjoining properties.

C. Continuation of streets into adjacent property

Streets shall be arranged to provide for the continuation of principal village streets between adjacent properties where such continuation is necessary for convenient movement of traffic, effective fire protection, efficient provision of utilities and particularly where such continuation is in accordance with the EHVC Concept Plan. If the adjacent property is undeveloped and the street must be a dead-end street temporarily, the right-of way of fifty (50) feet in radius shall be provided on all temporary dead-end streets, with the notation on the plat that land outside the street right-of-way shall revert to abutting owners when the street is continued. The Planning Board may require that such areas be shown and marked on the plat "Reserved for Street Alignment (or Widening) purposes."

§400-24 Stormwater Regulations and Low Impact Development

Stormwater for all roadways and parking areas shall be managed and infiltrated on site, close to the source, to minimize runoff and maximize water quality treatment. Stormwater water quality treatment shall be provided for the first inch of rainfall (25-year 24-hour storm) consistent with 310 CMR and the Massachusetts Stormwater management Handbook to attain 80-percent total suspended solids removal and to reduce nutrients. All designs shall provide for at least 44-percent total suspended solids removal prior to discharge into structured infiltration systems.

Stormwater design for the first inch of stormwater flow from development parking and roadways shall use biofiltration practices including, but not limited to, vegetated swales and filter strips, constructed wetlands, tree box filters, bio-retention basins and rain gardens for treatment of stormwater runoff. Bio-retention areas shall be constructed in accordance with the Massachusetts Storm Water Management Volume One: Stormwater Policy Handbook, March 1997.

§400-25 Natural Resource Analysis and Findings in the Natural Resources Protection District

A. In order to enable the Planning Board to determine whether or not a proposed by right subdivision, or a development by Special Permit that deviates from the requirements for NRP District, satisfies the purposes and standards of the zoning bylaw, an applicant must present sufficient information on the

environmental and open space resources for the Planning Board to make such determination. The required information shall be provided in the form of a "natural resource analysis" submitted by the applicant prior to filing a subdivision application, as required by Section 325-126 of the Zoning Bylaw. The Planning Board shall study the natural resource analysis, may conduct field visits, and shall recommend which land should be preserved and where development may be located. This study shall be undertaken in consultation with the Conservation Commission and any prospective holders of the conservation restriction required by Section 325-126I. The Planning Board shall make written findings supporting its determination (the "natural resource findings"). Prior to filing an application for any subdivision or ANR in the NRP zoning district, an applicant is encouraged to meet with the Planning Board, conservation administrator, and prospective holders of the conservation restriction to discuss the natural resource analysis.

B. The Planning Board shall deny any subdivision application that does not include sufficient information to make natural resource findings or that does not preserve land that the Planning Board determines should be preserved from development as a result of the natural resource analysis and findings.

C. The Planning Board's natural resource findings shall be incorporated into its subsequent decision to approve, approve with conditions, or deny a subdivision application. The natural resource findings shall show land to be permanently preserved by a conservation restriction, as well as recommended uses, ownership, and management guidelines for such land. The natural resource findings shall also indicate preferred locations for development if the Plan is denied based upon such findings.

SECTION 3:

DESIGN GUIDANCE

The following design guidelines for streets, architecture, public spaces and green design, are recommended measures to be incorporated into designs to the extent practical. Projects requiring a special permit under §325-120 B(2) must be consistent with these guidelines and with the EHVC Concept Plan. They are strongly encouraged wherever feasible in all other cases.

3A: STREET DESIGN GUIDELINES

Principal Village Streets:

The following guidelines for Principal Village Streets are recommended to support the village commercial focus and character:

A. On-Street Parking
Applicants should consider using distinctive pavement materials or permeable pavement to distinguish on street parking areas from travel lanes.

B. Street Edge
Curbs between on-street parking and pedestrian areas should be vertical/not mountable.

C. Landscaping and Planting Strips
Tree wells in planting strips between the on-street parking area and the sidewalk are preferred to provide the greatest amount of space for pedestrian movement.

D. Bicycle Movement
To facilitate safety, provision of pavement markings or special pavement materials is recommended to identify bicycle travel corridors or shared bicycle and automobile travel areas.

E. Pedestrian Crossings
Bump outs should be provided to define the limits of on-street parking spaces and to calm traffic and facilitate pedestrian crossing of streets. Using distinctive pavement treatments such as brick or stamped pavement pedestrian crosswalks is encouraged.

F. Pedestrian Areas
Pedestrian areas may be enhanced with the use of distinctive paving treatments, such as scored concrete or brick or stone pavers, in pedestrian areas and with street furnishings such as benches, planters and decorative light posts is encouraged. Sidewalks may widen into pedestrian plazas and include dining patio, outdoor display, and sitting areas as long as building setback requirements are met.

In locations where parking lots are adjacent to pedestrian areas, low fencing, walls and plantings should be provided to continue the building wall and define the edge of the pedestrian area.

LANDSCAPING AND PLANTING STRIPS | Photo Credit: Cyburbia.org

PEDESTRIAN CROSSING WITH BUMP OUTS | Photo Credit: A. Hamilton

SPECIAL PAVING WITH ON STREET PARKING | Photo Credit: Restless Urbanist.com

Secondary Village Streets:

The following guidelines are recommended for Secondary Village Streets, which have a more residential character than Principal Village Streets:

A. On-Street Parking
Parallel parking is encouraged, but angle parking may be appropriate with sufficient road width. Applicants should consider using distinctive pavement materials or permeable pavers to distinguish parking areas from travel lanes.

ON-STREET PARKING:| Photo Credit: jonschup/flickr.com

B. Street Edge
Curbs between on-street parking and pedestrian areas should be vertical/not mountable.

C. Landscaping and Planting Strips
Planting areas may be planted with grass or other low plant materials, in addition to street trees.

D. Bicycle Movement
To facilitate safety provision of pavement markings or special pavement materials is recommended to identify bicycle travel corridors or shared bicycle and automobile travel areas.

BICYCLE MOVEMENT: GREENWAY| Photo Credit: minsk.cafebabel.com

E. Pedestrian Sidewalks and Crossings
In areas where sidewalks abut mixed use buildings, they may be enhanced with distinctive paving treatments and street furnishings. Sidewalks may widen into pedestrian plazas and include dining patio, outdoor display, and sitting areas as long as building setback requirements are met. In locations where parking lots are adjacent to pedestrian areas, low fencing, walls and plantings should be provided to continue the building wall and define the edge of the pedestrian area.

BICYCLE MOVEMENT: SHARE THE ROAD | sdotblog.seattle.gov

Corridor Streets:

EHVC Corridor Streets (Route 137 and Route 39) are pre-existing regional roadways subject to state highway layout standards. Where future development proposals would alter a portion of a Corridor Street adjacent to the VM or VR zone, it should maintain as narrow a street profile as possible to preserve village character and facilitate safe pedestrian crossings.

3B: ARCHITECTURAL DESIGN STANDARDS AND GUIDELINES

These architectural standards and guidelines complement the dimensional requirements established in the EHVC zoning regulations by requiring or encouraging the desired traditional village character. EHVC zoning regulations direct building placement, building massing, and overall site character through building setback requirements, building height, lot coverage, street enclosure and parking. The following standards and guidelines are intended to provide further guidance to new development within the EHVC to achieve the EHVC planning goals. Those provisions in this section that are mandatory are identified as "standards," and those that are optional are identified as "guidelines."

A. Building Orientation

Standard: All buildings in the VM and VR districts shall orient their principal façade and entry to face the village street or a public open space to reinforce the building's primary relationship to the street.

Guideline: Buildings may have more than one principal façade and entry to establish a presence on two village streets, or on a village street and a public open space.

Guideline: In the Corridor Commercial district, buildings should be placed to facilitate shared parking, shared access and pedestrian flow, and to allow for larger open space/greenbelt areas between development clusters.

BUILDING ORIENTATION

B. Building Height

Standard: One-story buildings shall have a front elevation of at least 15 feet and incorporate vertically proportioned features to create the appearance of a taller building.

Guideline: One and one-half story and taller buildings are preferred because they provide greater street enclosure and follow traditional village forms.

BUILDING FORM

C. Massing of Large Building Forms

Standard: Building footprints over 10,000 square feet shall break down the mass into smaller components and/ or integrate smaller tenant spaces into the front of the building so that the front facade resembles connected main street buildings.

Guideline: For multiple building masses, the narrow façade of building should generally be oriented to face the street to create variety in building uses and visual interest along the sidewalk.

INTEGRATED SMALLER TENANT SPACES

D. Roof Forms

Standard: Buildings with pitched roofs shall have a primary roof form with a slope of at least 7:12. Buildings or portions of buildings with a flat roof shall have an articulated cornice or other architectural treatment that appears as an integral part of the building from all visible sides of the building.

Guideline: Pitched roofs, including gable, shed and hip roof forms, are preferred because they are more traditional village forms. The principle roof slope should be a minimum of 9:12, following traditional regional building forms.

E. Varied Roof Lines

Guidelines: Long unbroken expanses of roof should be avoided by varying the height of the roof line at both the roof peak and at the eaves. To break up the roofline on a large building, different roof forms on different parts of the building should be used. Non-functioning dormer windows, cupolas, towers, and similar details are strongly discouraged as a means of breaking up the roofline. Functioning dormers or skylights that allow natural light into the building are encouraged.

VARIED ROOF LINES

F. Façade Variation

Standard: Blank building walls longer than 30 feet without an opening that are adjacent to streets, residential neighborhoods, and to open spaces are prohibited.

Guidelines: Long façade lengths should be broken up by varying the wall plane and by articulating the base, middle, and top of the façade or different segments of the building façade with architectural trim and changes in the surface materials. For large buildings where multiple window and door openings are impractical, liner buildings that have articulated building facades should be used to screen blank walls from the street and public spaces. All facades visible from public streets, parking areas or green spaces should have characteristics similar to the front façade of the building.

FENESTRATION & FACADE VARIATION

G. Door and Window Openings

Standard: Door and window openings shall be vertically proportioned, except for storefront windows, consistent with traditional building design, drawing their proportions from the façade length and height. All windows, except storefront windows, shall be operable.

ARCADES/CANOPIES

H. Arcades and Canopies

Guidelines: Arcades and canopies are encouraged and should be used to connect buildings to one another so that a person can walk from place to place with some shelter. Each canopy should be distinct from its neighbors, and continuous awnings with no change in height, color, or material over several stores are discouraged. Arcades and canopies may be located within the front yard setback area as long as they do not interfere with pedestrian walkways and mobility.

ENCROACHMENTS

I. Encroachments into Front Setback Area

Standard: Use of the front setback area is permitted only for pedestrian access/amenities such as walkways, benches, dining areas, and other outdoor accessory uses. Awnings, balconies and architectural features may project into the front setback in all districts. In VR, porches, stoops, fencing and similar structures may be located within the front setback area. No parking is allowed in the front setback.

J. Residential Entries
Guidelines: Residential entries should be identifiable and prominent. Entries should be marked by raised stoops, porches, overhangs or other architectural features. Primary entries for multi-family buildings with shared corridors should be ADA accessible as required by code. Mixed-use buildings with secondary entries to access residential units should identify the residential entry with one of the features noted above.

RESIDENTIAL ENTRIES | Photo Credit: Streetswiki

K. Commercial Entries
Standard: Main entrances shall be located along street front facades and shall incorporate architectural features that draw attention to the entrance. These features may include covered porches, porticos, recessed doorways and awnings. Commercial entries shall be flush with the exterior grade.

COMMERCIAL ENTRIES

L. Site Access
Standard: No parcel may have more than one driveway on a Corridor Street.
Guideline: Vehicular connections between properties shall be provided where possible, unless rear alleys or shared parking areas provide such connections.

M. Service and Loading Areas
Standard: Building service and loading docks shall be located to the rear of a building and shall not face public streets, parks or public gathering spaces. Service and loading docks shall incorporate effective techniques for visual and noise buffering from adjacent uses, using means such as fencing, landscaping or decorative screening. Garages and garage doors are prohibited on the front façade of a building in the VM zone. This requirement shall not prelude allowance for temporary loading zones along village streets, where appropriate.

SERVICE AND LOADING AREAS

N. Garage Location
Standard: Garages, both attached and detached, shall be subordinate in size, height, and location to the principal building and shall be located behind the front façade of the principal building.
Guideline: In the VR zone, access to garages by rear alleys is encouraged.

O. Exterior Materials
Standard: Industrial materials such as unfinished concrete, sheet metal, vinyl and plastic synthetic siding are prohibited along streets and public areas.
Guideline: Materials and building treatments shall be consistent and compatible with traditional New England design, with a preference for natural materials such as brick, stone, wood/concrete clapboards and shingles. Where more than one material is used, naturally heavier materials such as stone or brick

COMPATIBLE BUILDING MATERIALS

should be located below naturally lighter materials such as wood. Changes in materials should be made along a horizontal line, such as at the 'water table' line above the foundation, or at a floor level. High-quality materials should be used on all building facades where pedestrian activity is high, and along all principal village street facades.

P. Roof Mounted Equipment

Standard: Equipment mounted on roofs shall be screened from public view by the use of architecturally compatible materials or grouped at the rear of the structure where visibility is limited.

Q. Signage

Guideline: Building signs should be either flush or perpendicular to the building wall, and placed within a sign band just above the first floor windows or above the doorway. Flat wall signs should have horizontal proportions and should not protrude above the sill line of the second floor. Projecting signs should be placed above the doorway.

R. Landscaping

Standard: Landscaping shall incorporate Low Impact Development (LID) techniques described in Section 3 - Design Guidance and in accordance with the parking lot design requirements in §325-124 F(3). Landscaping shall incorporate measures to reduce potable water use for landscape irrigation and maintenance needs through use of drought tolerant species and efficient irrigation design. General stormwater for all roadways and parking areas shall be managed and infiltrated on site, close to the source, to minimize runoff and maximize water quality treatment.

Guideline: At least 15% of the front setback area should be landscaped with low-growing shrubs and plantings (below 3 feet) to allow for fenestration. In Public Space areas, landscaping should occupy at least 20% of the open space area.

Guideline: Landscaping should use native and drought resistant plant materials. Consider planting native plants as plant communities in dense groupings to increase habitat opportunities. Native plants can be used for both formal and naturalistic designs. On sites with existing native vegetation, design the site to preserve native plants where possible. On previously developed sites, applicants should contact local and regional governmental agencies, consultants, educational facilities, and native plant societies as resources for the selection of native plants appropriate for the site and avoid introduction of invasive plants.

S. Street Trees

Standard: New development shall provide a minimum of one 3" caliper tree per 50' of building frontage, to be planted in

SIGNAGE | *Photo Credit: City of St.Albert*

LANDSCAPING | *Photo Credit: Jo Anne Miller-Buntich*

STREET TREES

greenways (if applicable) or in the sidewalk area. Trees shall be planted at the same spacing as existing trees or at 40-foot intervals if there are no existing trees. Where necessary, spacing exceptions may be made to accommodate curb cuts, fire hydrants, and other infrastructure elements, but exceptions shall not deviate from the street standard any more than is necessary.
Guideline: Trees on Corridor Streets should not exceed 50 feet in height and should not be located within 20 feet of existing power lines, Trees located along Village streets should not exceed 25 feet in height. Trees along Principal Village streets should be chosen for visual interest, hardiness, and site suitability and be uniform on each block.

T. Lighting
Standard: Internally illuminated signs are prohibited. All exterior lighting other than municipal street lighting shall use full cut-off fixtures. Light poles shall not exceed 15 feet in height. Light spill shall not extend onto adjacent properties.
Guideline: Light posts and fixtures should be decorative in nature and should not use standard industrial-finish poles or shades.

LIGHTING

U. Bicycle Parking
Standard: A minimum of one Bicycle Parking Space shall be provided for each 10 off-street automobile parking spaces. All bicycle parking spaces shall be provided in the form of Bicycle Racks with locking capability.
Guideline: Sheltered or indoor bicycle racks or lockers are encouraged.

BIKE RACKS | *Photo Credit: VeloBusDriver*

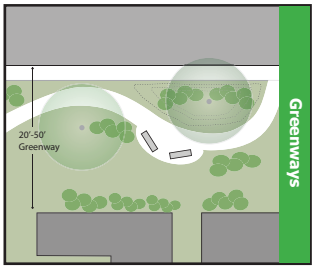
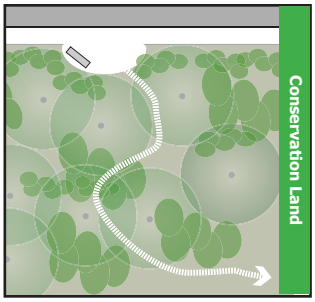
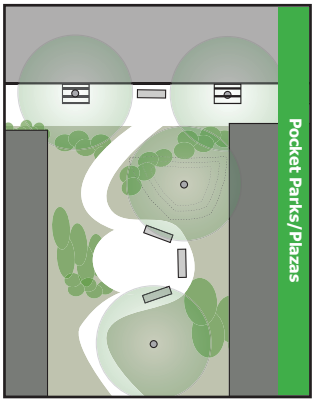
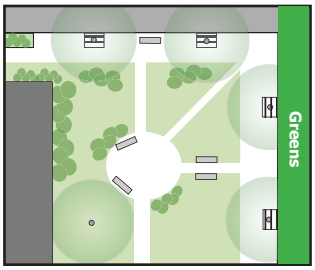
V. Streetscape Amenities
Guideline: Street and greenway design should incorporate amenities such as bike racks, bus shelters, trash/recycling bins, postal boxes and benches or seatwalls at appropriate intervals oriented to the pedestrian.

AMENITIES | *Photo Credit: Billingham.Hill Picasa.com*

3C: GUIDELINES FOR DESIGN OF PUBLIC SPACES

The goal of the EHVC Public Space designation is to act as a green "spine" for development, facilitating pedestrian travel as an alternative to vehicular travel, and providing rest areas while providing aesthetic, ecological and mobility benefits to the district. These spaces are critical components to the overall pedestrian experience and should maintain a scale appropriate for the user.

The following table establishes the dimensions and layout of public spaces which are required in §325-121 A. The EHVC public spaces encompass all outdoor areas for public use, including the distinct elements of greenways, conservation lands, pocket parks, plazas, and greens. Public Spaces also include pedestrian and bicycle travel ways along streets. The purpose of Public Space is to encourage the integration of open spaces with non-motorized travel ways within the built environment of the EHVC. All new development or redevelopment projects are encouraged to arrange their site plan to facilitate travel along areas of public open space, particularly those designated in the concept plan for East Harwich Village Center.

General Definition	Dimensions	Access	Landscaping Requirement	Uses	
GREENWAYS: Areas that act primarily as corridors for pedestrians and bicyclists to enable linkages to open space areas between developments.	20 ft. min. width/50 ft. max. width	Street facing frontage access @ intervals of 1 per 100 feet	3" caliper trees at intervals of 40 ft. on center; 20% LID landscaping requirement	Recreational Corridor	
CONSERVATION LAND: Areas that provide important ecological functions designated as conservation land. Passive recreational activity is allowable in street fronting setback areas only, and may include paths, landscaping, interpretive signage, pedestrian amenities, and trailheads.	N/A	Limited to unimproved trailheads	Native only in groupings according to plant community	Limited to unimproved trails	
POCKET PARK/PLAZA: Public open spaces, with public access defined spatially by building frontages or village street frontage. Pocket parks incorporate landscaping, with turf, Plazas consist primarily of hardscape.	May occupy up to 15% of road frontage of single property or block segment; Min. 3,000 SF; Max. 5,000 SF	Street facing frontage access @ intervals of 1 per 75 feet	3" caliper trees at spacing of 40 ft. on center; 20% LID landscaping requirement	Public civic space, passive recreation	
GREEN: Centrally located public open space consisting of paths, landscaping and trees. Building frontages and streets spatially define a green.	Min. 5,000 SF; Max. 150, 000 SF	Street facing frontage access @ intervals of 1 per 75 feet	3" caliper trees at spacing of 40 ft. on center; 20% LID landscaping requirement	Public civic space, active recreation	

Throughout the Public Space, development can enhance the pedestrian scale by incorporating the following elements into its design:

A. Street lighting

B. Benches, postal boxes, newspaper stands and trash/recycling receptacles

C. Transit stop locations that are not isolated from land uses

D. Increased visibility through building design (windows and doorways that face public areas)

E. Comfort and safety

F. Connection and accessibility

G. Low Impact Development (LID) Techniques

H. Greenways: To provide adequate buffer and aesthetic value in greenway areas, feature verdantly planted landscapes with varied topography and minimal visual clutter. Pedestrian rest areas, including at a minimum benches and trash/recycling receptacles and at a maximum plazas or pocket parks, are recommended at intervals of 300'. Wayfinding at an appropriate scale is encouraged along greenways and trails. Pathways should be sized and graded for universal accessibility/ADA standards.

H. Pocket Park/Plazas: Plazas are not recommended in the VR district. Pocket Parks may be provided in the front setback area of a development site for high visibility, easy access, and opportunities for public gathering. Pocket parks should be defined on at least one side by buildings, and may extend back 50 feet from the street frontage. Building walls adjacent to pocket parks should have an appropriate percentage of fenestration to maintain line of site. This serves to deter inappropriate activity as well as provide restful viewing to those inside buildings. Pocket parks should be accessible from sidewalks and provide restful seating areas and shade opportunities.

I. Greens: Recommended features include paths, hardscape, seatwalls, landscaping, with large areas of turf for passive recreation and shade/specimen trees. Greens can be utilized anywhere that is central and desirable as a focal point.

GREENWAYS | *Photo Credit: Kameido Greenway Park*

POCKET PARK

PLAZAS | *Photo Credit: Streetswiki.com*

GREENS | *Photo Credit: John Phelan*

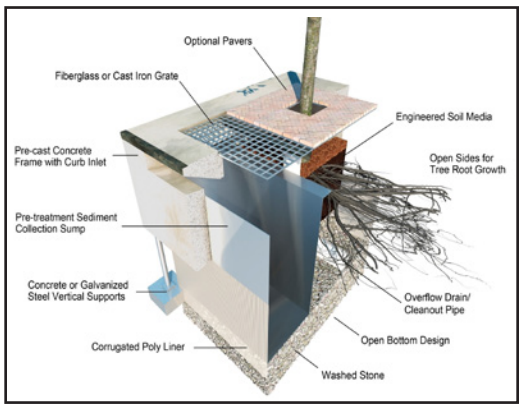
3D: GREEN DESIGN GUIDELINES

Green design uses less energy, requires less water and natural resources; generates less waste; and minimizes impacts on the land compared to traditional design, construction and maintenance techniques. Green buildings and sustainable site design can even reduce environmental impacts by cleaning the air and water, mitigating climate change, restoring habitat and biodiversity – all while providing significant social and economic benefits to the immediate site and surrounding region.

A. LID Stormwater retention guidelines – Best Management Practices

The goal of LID (Low Impact Development) is to restore a site's ecological function to pre-development conditions. For infill development, best management practices increase the water treatment capacity of the site in order to reduce receiving water impacts (e.g., stormwater discharges, which can contain trash, nutrients, and heavy metals). This is done by minimizing impervious cover, and maximizing cover of pervious or semi-pervious surfaces that allow water to infiltrate into soil.

Stormwater design for the first inch of stormwater flow should use biofiltration practices including, but not limited to, vegetated swales and filter strips, tree box filters, and rain gardens for treatment of stormwater runoff. Bioretention areas shall be constructed in accordance with the Massachusetts Storm Water Management Volume One: Stormwater Policy Handbook, March 1997. Stormwater water quality treatment shall be provided for the first inch of rainfall (25-year 24-hour storm) consistent with 310 CMR and the Massachusetts Stormwater management Handbook to attain 80-percent total suspended solids removal and to reduce nutrients. All designs should provide for at least 44-percent total suspended solids removal prior to discharge into structured infiltration systems.



TREE BOX FILTER | *Photo Credit: MA Stormwater Handbook*

STORMWATER PLANTERS | *Photo Credit: City of Portland, OR*

RAIN GARDEN | *Photo Credit: MA Stormwater Handbook*

1. LID On village mixed-use streets and parking areas: In both new street construction and when retrofitting a street, eliminate unnecessary impervious area where possible. Inclusion of plants and trees (most likely requiring amended soils) serves to clean runoff and manage stormwater at the site. On village streets, biofiltration BMP's which utilize less surface area such as tree filter boxes, curbed biofiltration planters, and permeable paving (either in the form of modular pavers or as pervious asphalt or concrete) should be considered. For corridor roads, swales and rain gardens can be integrated as a component of landscaping into street fronting greenways to accept sheet flow runoff and convey it in broad shallow flow.

2. LID In Public Space areas: Rather than designating large areas of stormwater treatment in the form of detention basins or swales, stormwater can be man-

aged effectively on-site through smaller sized LID practices integrated into a site's landscape design. BMP's in the form of rain gardens, permeable pavers or aggregate, runnels to convey stormwater and drought tolerant plantings are some of the techniques which can be both aesthetic and functional.

3. Green Roofs and Living Walls. Green roofs and living walls are recommended and have been shown to assist in storm-water management by removing up to 50% stormwater volume, regulating building temperatures, reducing heat-island effects, and increasing urban wildlife habitat. They can also be used in conjunction with cisterns to capture roof runoff for use in irrigation.

B. Energy Efficient Building Design and Siting

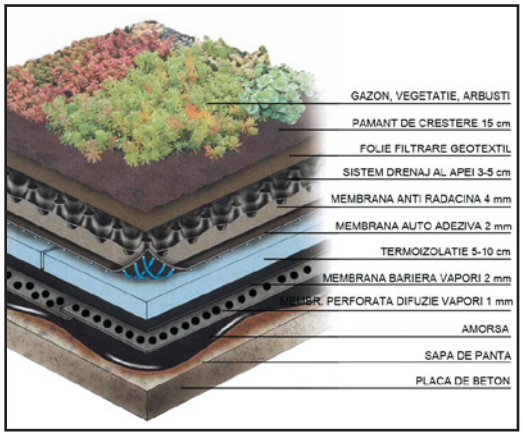
1. Solar Orientation: Buildings should be designed and oriented to take advantage of passive solar heating and shading for cooling. Windows should be oriented to take the greatest advantage of passive solar heat. Orientation of roof planes should consider the benefits of southward orientation to allow for installation of solar panels. Whenever possible, building design should minimize the blocking of sunlight onto public spaces such as sidewalks.

2. Use of Natural Daylight: Buildings should be designed and oriented to maximize the use of daylight in interior lighting, with a goal of providing ambient daylight at a level of 250 Lux in 75% of the internal space. Designers should consider a combination of display windows, transom windows, dormer windows, roof windows and skylights to provide interior lighting.

3. Green Roofs: Green or "living" roofs, which are partially or completely covered with vegetation and a growing medium placed over a waterproof membrane, are strongly encouraged. Green roofs absorb rainwater, provide insulation, improve water quality, and help combat heat islands. A green roof with 50% coverage of the roof surface, or the use of light colored roofing materials with 75% coverage of the roof surface is recommended. (Light colored materials should have a Surface Reflectivity Index greater than 78 and emissivity greater than 0.9 according to ASTM Standard 408.)

PARKING LOT LID | *Photo Credit: MA Stormwater Handbook*

GREEN ROOF | *Photo Credit: WV DEP*



GREEN ROOF COMPONENTS | *Photo Credit: Hidroset*

SOLAR ORIENTATION | *Photo Credit: Sustainable Structures, Inc Maine*

4. Landscaping for Shade:
   Trees and other vegetative cover should shade at least 30% of hardscape areas on the lot, including surface parking areas, walkways and other hard surfaces. Alternatively, a combination of shading and light colored materials with a reflectance of 0.3 for at least 50% of hardscape, including surface parking areas, walkways and other hard surfaces may be used. Vegetation should be used to minimize building heating and cooling requirements. Place vegetation and or vegetated structures in strategic locations around buildings to reduce energy consumption and costs. Deciduous species are especially beneficial by increasing cooling shade in the summer while allowing for sunlight in winter.

5. Use of recycled, regional materials and certified wood hardscaping and landscape structures is recommended.

VEGETATION FOR HEATING & COOLING

VEGETATION FOR HEATING & COOLING