

Urban Coastal Greenways for the Metro Bay Region

Table of Contents

100	Executive Summary	3
110	Title	9
120	Intent and Purpose	9
130	Metro Bay Region Policies	13
	<u>130.1 Urban Coastal Greenways</u>	13
	<u>130.2 High Priority Conservation and Restoration Areas</u>	14
	<u>130.3 Coastal and Freshwater Wetlands</u>	14
	<u>130.4 Building Shading</u>	14
	<u>130.5 Visual Elements</u>	14
140	Activities That Trigger Urban Coastal Greenway Requirements	16
	<u>140.1 Applicability</u>	16
	<u>140.2 Standards</u>	16
	<u>140.3 Other Projects</u>	17
	<u>140.4 Exemptions</u>	17
150	Metro Bay Region Coastal Development Standards	18
	<u>150.1 Standards Applicable to Entire Development</u>	18
	<u>150.2 Urban Coastal Greenway Zones</u>	19
	<u>150.3 General Standards for Urban Coastal Greenways</u>	20
	<u>150.4 Vegetation Standards for all Urban Coastal Greenways</u>	21
	<u>150.5 Public Access Standards for all Urban Coastal Greenways</u>	22
	<u>150.6 Stormwater Standards for all Urban Coastal Greenways</u>	24
	<u>150.7 Structural Shoreline Protection Standards for all Urban Coastal Greenways</u>	26
	<u>150.8 Prohibitions</u>	27
160	Residential Zone	28
	<u>160.1 Definition</u>	28
	<u>160.2 Policy</u>	28
170	Area of Particular Concern Zone	29
	<u>170.1 Definition</u>	29
	<u>170.2 Policy</u>	29
	<u>170.3 Standards</u>	29
	<u>Option 1: Standard buffer width</u>	29
	<u>Option 2: Variance request</u>	30
180	Inner Harbor and River Zone	31
	<u>180.1 Definition</u>	31
	<u>180.2 Policy</u>	31
	<u>180.3 Prohibitions</u>	31
	<u>180.4 Standards</u>	31
	<u>Option A: Standard UCG Width (20 feet)</u>	32
	<u>Option B-1: Standard UCG Width (50 feet)</u>	33
	<u>Option B-2: Compact UCG Width (20 feet)</u>	33
	<u>Option C: Capital Center District</u>	34
190	Development Zone	35
	<u>190.1 Definition</u>	35
	<u>190.2 Policy</u>	35
	<u>190.3 Standards</u>	35
	<u>Option 1: Standard buffer width</u>	35
	<u>Option 2: Standard UCG Width (100 feet)</u>	35
	<u>Option 3: Compact UCG Width (50 feet)</u>	36
	<u>Option 4: Small Lot Exemption (Compact UCG - less than 50 feet)</u>	36
200	Mitigation Requirements in Lieu of Public Access	38
210	Variance Requests	39

220	Brownfield Redevelopment within the Metro Bay Region.....	40
220.1	Urban Coastal Greenway Policies on Brownfields.....	40
220.2	Urban Coastal Greenway Standards on Brownfields.....	40
230	Compensation Options for Urban Coastal Greenway Requirements.....	42
230.1	Urban Coastal Greenways Trust.....	42
230.2	Possible Compensation Measures.....	43
240	Urban Coastal Greenway Management and Maintenance Requirements	45
250	Maintenance and Monitoring of Innovative Stormwater Technologies	46
260	Education	47
270	Findings of Fact Regarding Urban Coastal Greenways and Coastal Vegetative Buffers.	48
280	Definitions	52
290	References	56
300	Appendices	58
Appendix 1.	Coastal Buffer Zone Designations for the Residential Development Zone.	58
Appendix 2.	Standard Coastal Buffer Width Requirements.....	58
Appendix 3.	Habitat Quality Ranking Criteria.	58
Appendix 4.	Map of High Priority Conservation Areas and High Priority Restoration Areas (HPRAs). 62	

List of Figures

Figure 1.	Map depicting the area of the Metro Bay Region Special Area Management Plan.	4
Figure 2.	Urban Coastal Greenway Zone Map.....	5
Figure 3.	Decision Tree for Residential Zone and Area of Particular Concern Zone.....	6
Figure 4.	Decision Tree for Inner Harbor and River Zone.	7
Figure 5.	Decision Tree for Development Zone.	8
Figure 6.	Vegetated revetment.....	26
Figure 7.	Terraced UCG.....	27
Figure 8.	Development Zone Option 2 without public access.....	38

100. Executive Summary

This document, the Urban Coastal Greenway (UCG) Regulations for the **Metro Bay Region**, describes a new regulatory approach toward coastal vegetative buffers for the urbanized environment of northern Narragansett Bay. Urban Coastal Greenways offer a mechanism to redevelop the urban waterfront of the Metro Bay Region in a manner that integrates economic development, expanded public access *along* and *to* the shoreline, and provides for the management, protection, and restoration of valuable coastal habitats.

With the development of these new regulations, applicants have a choice between following the coastal buffer and setback regulations as set forth in the **Rhode Island Coastal Resources Management Program** (RICRMP) or using the UCG option. The UCG policy is intended to provide a permitting option that clarifies and streamlines the regulatory process for urban coastal development, and to create greater flexibility in meeting the Coastal Resources Management Council requirements. The new policy therefore establishes specific standards regarding overall vegetation of the site, management of stormwater runoff using Low Impact Development (LID) techniques, and public access, as described in UCG Section 150. The increased regulatory flexibility is reflected in the establishment of four Urban Coastal Greenway Zones within the planning boundary of the Metro Bay Special Area Management Plan (SAMP): Residential Zone, Area of Particular Concern Zone, Inner Harbor and River Zone, and Development Zone. The boundaries of these zones have been determined by the existing conditions of coastal habitat, public access infrastructure, single and two-family residential areas, and current municipal plans for development and/or redevelopment. The requirements for each Zone are described in UCG Sections 160 through 190, and are outlined in the flow chart below. Applicants are encouraged to use the Metro Bay Internet Map Service (IMS) available online at: <http://maps.provplan.org/sampmapper/> for more detailed maps and other pertinent Metro Bay map and data information.

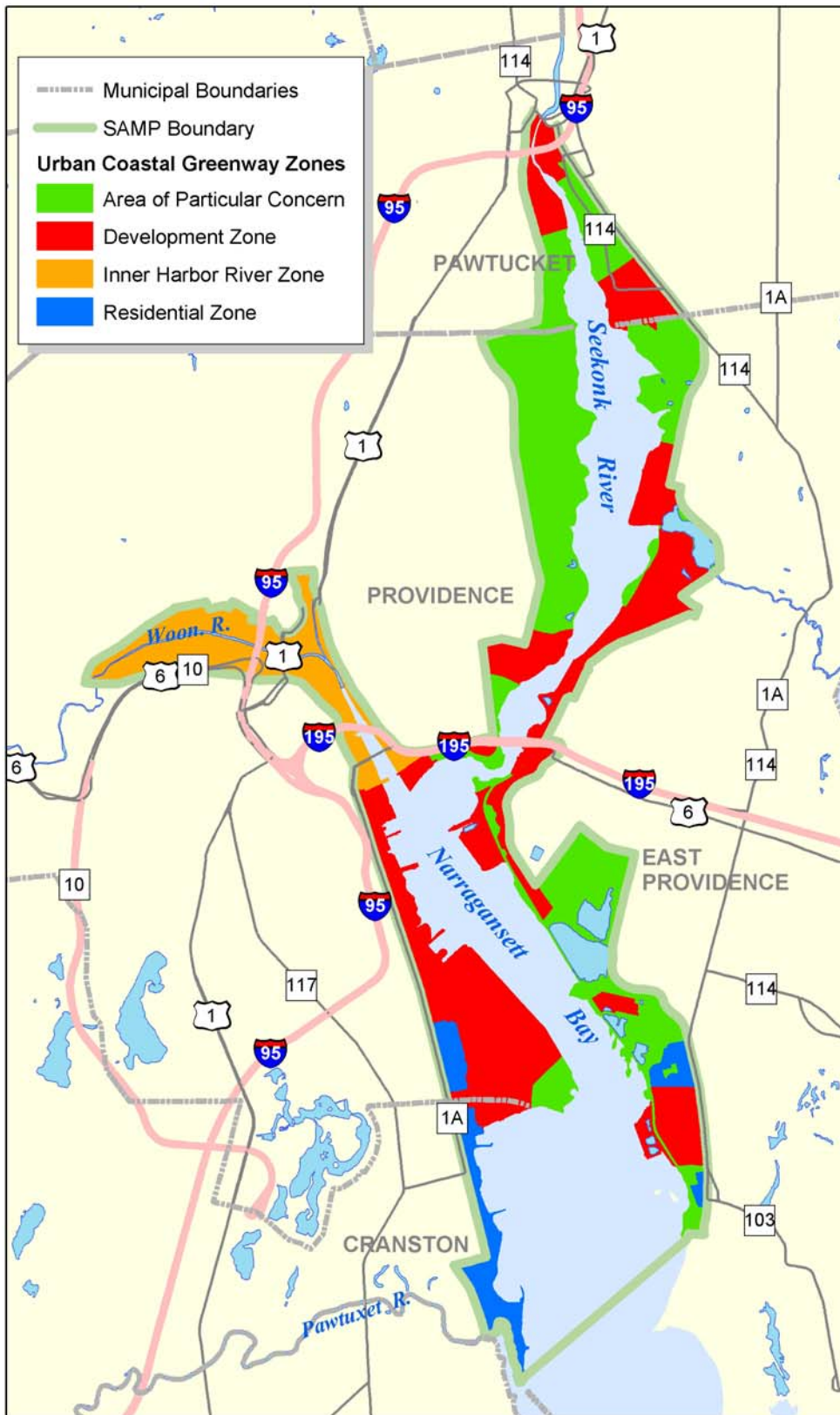
Only projects that are located within the CRMC coastal jurisdiction are subject to the UCG Regulations, as described in UCG Section 130. Freshwater wetlands within CRMC's jurisdiction in the Metro Bay Region will be subject to the Council's *Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast*. The CRMC will provide a fifteen (15) day public notice period for all Urban Coastal Greenway projects. If there are no substantive objections (See RICRMP Section 110.3) following the public notice, an Administrative Assent will be issued for projects that meet the Urban Coastal Greenway requirements with the exception of buffer variance requests for projects located with Areas of Particular Concern (Category B review).

Another novel component of the Urban Coastal Greenway policy is the inclusion of an option to reduce the UCG width through **compensation**. The compensation options generally allow an applicant to reduce the UCG from the standard width to a compact width in return for site or coastal resource enhancements such as improved public access or habitat conservation and preservation. These options are described in Section 230 of this document.

Flexibility is crucial to the management and protection of coastal resources in urban environments. It is desirable to encourage responsible redevelopment of the Metro Bay Region shoreline in order to promote reuse of heretofore abandoned or underutilized brownfield sites, and also to discourage over-development of Rhode Island's dwindling rural and suburban green spaces. Similarly, it is important to protect existing natural coastal habitat that offers unique environmental and social benefits to the Metro Bay Region. The UCG Regulations provide a regulatory framework for accomplishing all of these objectives simultaneously.



Figure 1. Map depicting the area of the Metro Bay Region Special Area Management Plan (SAMP).



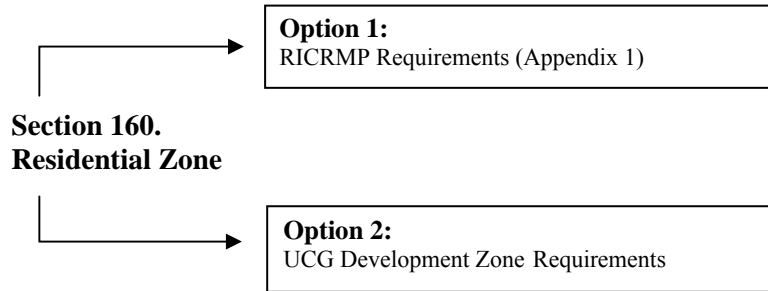
Map prepared by The Providence Plan
 Additional layers provided by the Rhode Island Geographic Information System (RIGIS)

Figure 2. Urban Coastal Greenway Zone Map.

Go online at: <http://maps.provplan.org/sampmapper/> for an interactive version of the map above

Figure 3. Decision Tree for Residential Zone and Area of Particular Concern Zone.

RESIDENTIAL ZONE REQUIREMENTS:



AREA OF PARTICULAR CONCERN ZONE REQUIREMENTS:

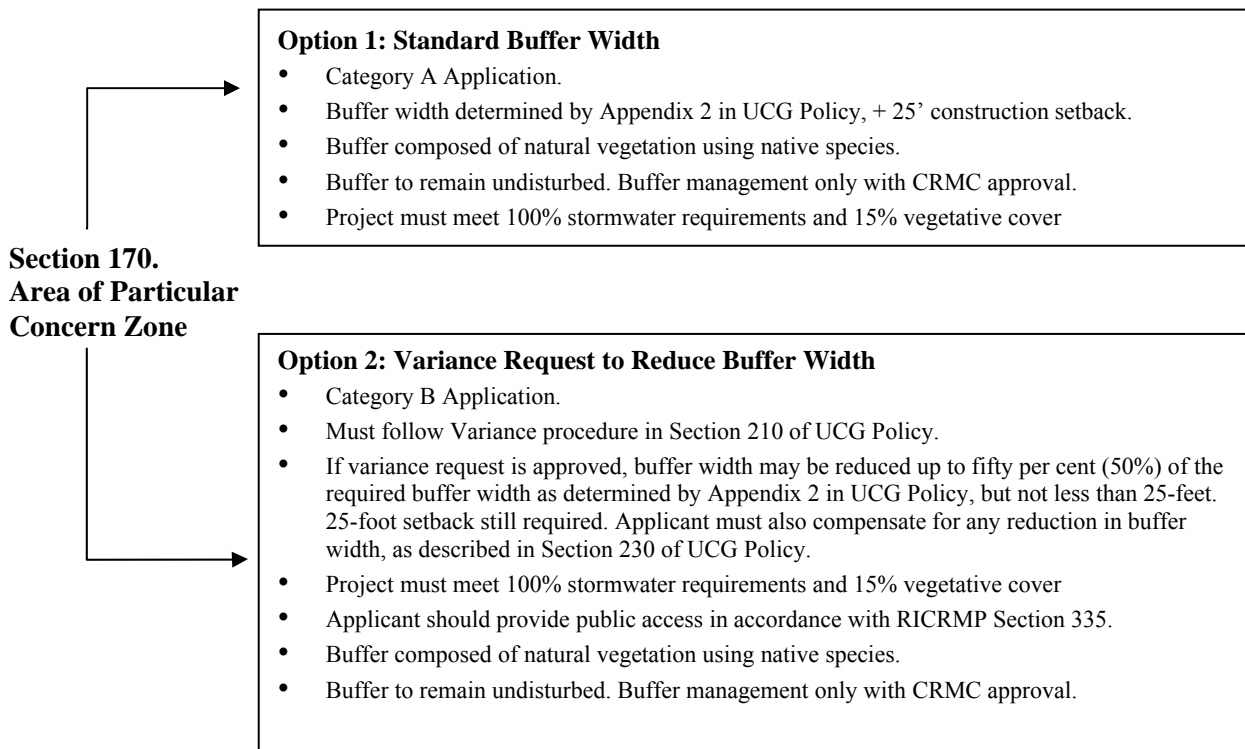


Figure 4. Decision Tree for Inner Harbor and River Zone.

INNER HARBOR AND RIVER ZONE REQUIREMENTS:

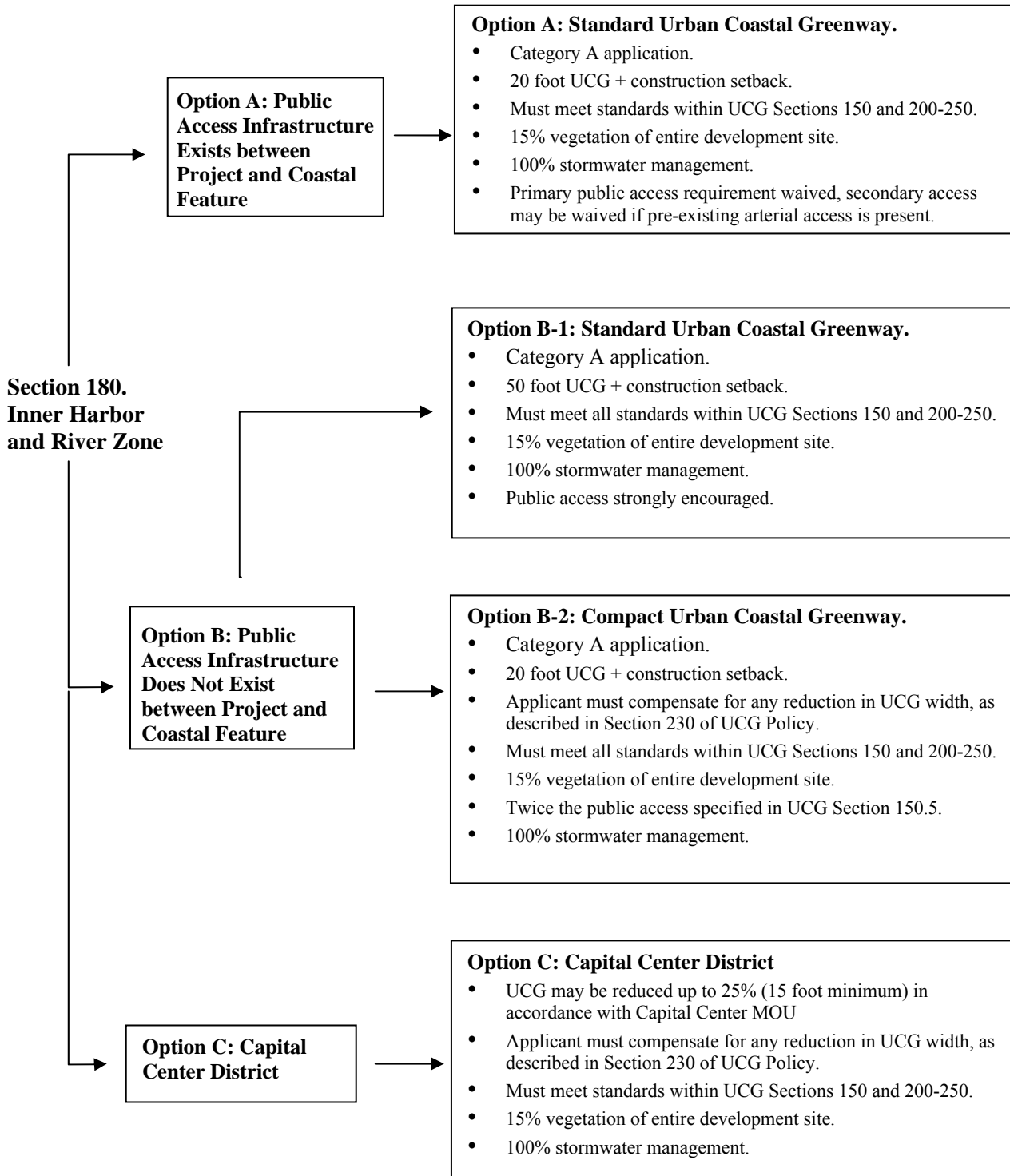
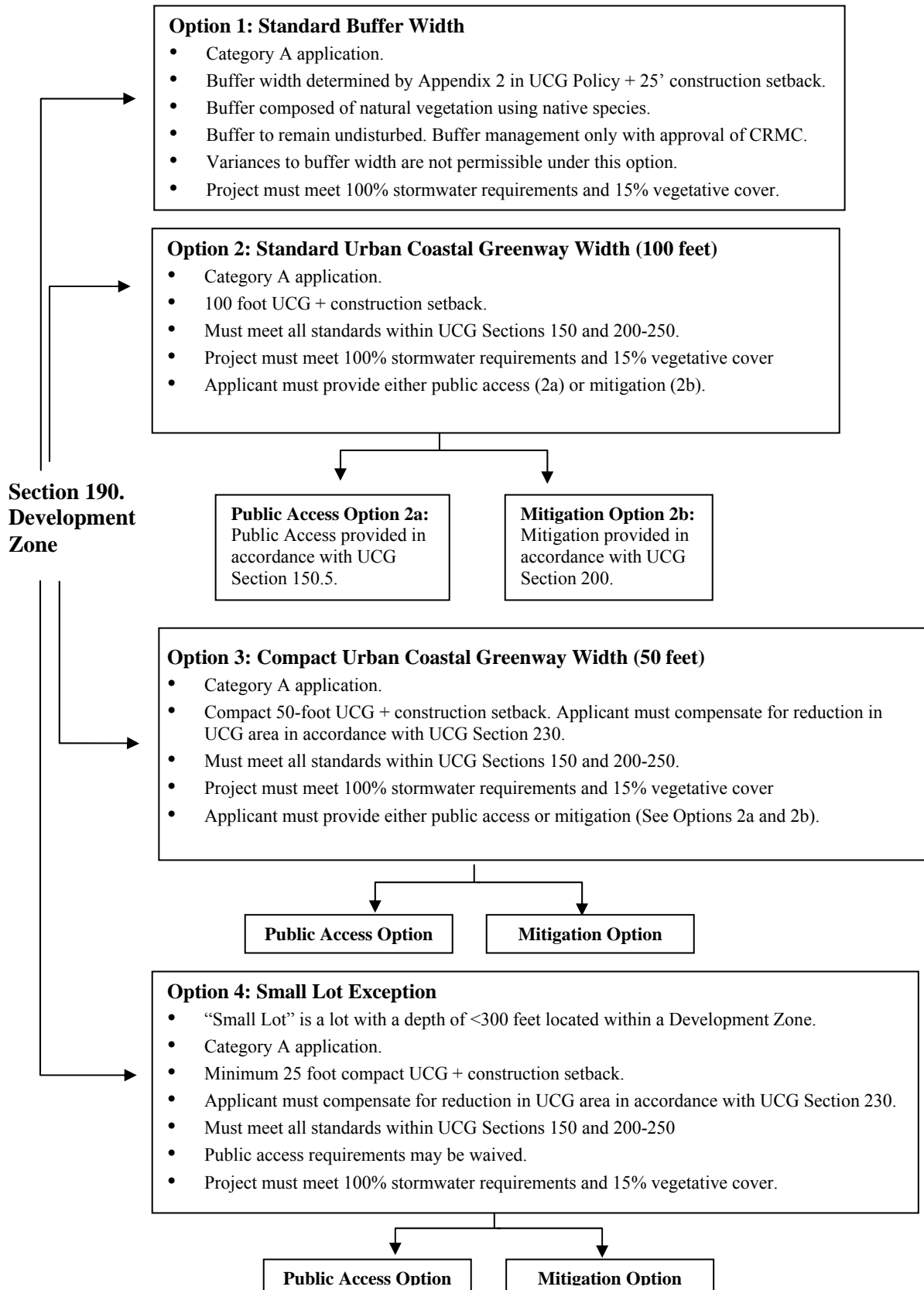


Figure 5. Decision Tree for Development Zone.

DEVELOPMENT ZONE REQUIREMENTS:



110. Title

110.1. This policy shall be known as “The Urban Coastal Greenway Regulations for the Metro Bay Region” and may be referred to generally as the “Urban Coastal Greenway” or “UCG” Regulations.

120. Intent and Purpose

120.1 The Rhode Island Coastal Resources Management Council’s (**CRMC**, **RICRMC**, or the **Council**) rules governing coastal vegetative buffers have been used since 1983 to ensure the protection of Rhode Island coastal waters (See RI Coastal Resources Management Program Section 150). The application of the coastal buffer rules, however, has met with some difficulty in the more urban areas of Rhode Island. These original buffer regulations were not designed to accommodate the large-scale coastal redevelopment that is currently being proposed for the Metro Bay Region (Cranston, East Providence, Pawtucket, and Providence). The RICRMP Section 150 buffer rules also were not designed for the specific challenges of urban environments. For example, the current coastal buffer regulations require that buffer zones be undisturbed, and allowed to grow naturally in order to gain the maximum wildlife habitat and water quality benefits possible. While it is still desirable to achieve the maximum habitat and water quality benefits possible within urban areas, the design of vegetative buffers must also acknowledge and support increased public access to the shoreline. In addition, urban buffers require thoughtful design and maintenance if they are to achieve water quality goals in areas dominated by impervious cover.

The RICRMC therefore endeavored to create a revised coastal vegetative buffer policy for the Metro Bay Region that could accommodate three primary goals: increased public access to the coast, improved water quality via on-site vegetative stormwater treatment, and the preservation and restoration of habitat corridors and the general aesthetic value of Rhode Island’s urban shoreline. Although the federal mandate governing the RICRMC’s activities also calls for the consideration of additional coastal values and functions, as discussed below, the Council recognizes that the use, size, and financial constraints of urban parcels require a more focused and flexible approach toward coastal management. This has been accomplished through the creation of four application zones in the Metro Bay Region. The balance between each of the RICRMC’s responsibilities is achieved through the use of these zones and is integral to the policy success.

The policy that follows, the “Urban Coastal Greenway Regulations for the Metro Bay Region”, is the result of RICRMC’s efforts to involve multiple interests in the development of this new urban approach toward coastal vegetative buffers. The Council envisions a continuous Urban Coastal Greenway corridor along upper Narragansett Bay that will ensure the protection of coastal resources, as well as enhancement of the unique views available to this state’s citizens and visitors as they travel along the urban coast of the Metro Bay Region. The Urban Coastal Greenways program will also secure the ability of urban residents and visitors alike to access the shoreline that is tied to the rich history, culture and natural beauty

of Rhode Island. The RICRMC has provided a series of options within this document to create a flexible approach toward meeting the Urban Coastal Greenway requirements.

120.2 Since the Providence Harbor Special Area Management Plan (SAMP) was adopted in 1983, the use of Rhode Island's urban shoreline has shifted from industrial and port-related to mixed commercial and residential. Public and professional opinions have also shifted toward greater support for urban greenspace. New development in the municipalities of the Metro Bay Region (Pawtucket, Providence, East Providence, and Cranston, see Figure 1) in conjunction with the development of many statewide programs with similar goals, provides a rare opportunity to create a continuous greenway along the coastline of upper Narragansett Bay that will facilitate mixed use of the waterfront while protecting water quality, public access, and important coastal habitats.

120.3 It is the responsibility of the Rhode Island Coastal Resources Management Council (RICRMC) to preserve, protect, develop, and where possible, restore the coastal natural resources of Rhode Island. The Federal Coastal Zone Management Act also charges the RICRMC with:

- (a) assisting in the redevelopment of deteriorating urban waterfronts, and considering the need for economic development that is compatible with the ecological, cultural, historic, and aesthetic values of the coastal zone;
- (b) ensuring the availability of public access points for coastal recreation;
- (c) considering the need for siting of facilities for national defense, energy, fisheries development, ports and transportation, as well as appropriate siting of new commercial and industrial developments;
- (d) timely review of projects through the streamlining of management activities; and
- (e) providing opportunities for public involvement in the decisions regarding coastal management.

120.4 The CRMC encourages the incorporation of public access on new developments in Section 335 of the RICRMP.

120.5 It is therefore the intent of this policy to establish a program that protects these ecological, economic, recreational, historic, cultural, and aesthetic values to the greatest extent practicable. The "**Urban Coastal Greenway**" program consists of a management area designed to accommodate development on the urban coastlines of the Metro Bay Region, while still meeting the mandates of the Coastal Zone Management Act. The purposes of the Urban Coastal Greenway Policy are:

- (a) to preserve, protect, restore, and enhance the overall quality of Narragansett Bay's urban coastal waters;

- (b) to capture nutrients, sediment and other waterborne pollutants from surface runoff;
- (c) to minimize flood impacts and shoreline erosion;
- (d) to protect, preserve, enhance, and restore coastal fish and wildlife habitat;
- (e) to preserve and enhance the experiences available along the urban coast;
- (f) to achieve responsible shoreline development that will allow a mixture of land uses (residential, recreational, commercial, and industrial) that orient to northern Narragansett Bay, including the Seekonk and Providence Rivers;
- (g) to preserve, enhance, or create an aesthetically pleasing view from the water, as well as from opposing shorelines;
- (h) to maintain the accessibility and natural habitat of the Metro Bay regional shoreline, as well as access to established pedestrian and bicycle trails; and
- (i) to provide safe public access to and along the shoreline.

120.6 While each of the purposes mentioned above will be considered in the establishment of Urban Coastal Greenways, the preeminent goals of this UCG policy are to prevent further degradation of coastal waters by treating stormwater (through vegetative means where possible), to protect and/or restore coastal habitats, and to ensure public access to the urban shoreline while preserving an aesthetically appealing view from both the water and the shore. In addition, the UCG policy offers a mechanism to encourage thoughtful economic development of the Metro Bay Region shoreline in a way that contributes to the CRMC's goals of enhancing the natural, recreational, and industrial history of the region.

120.7 The goals of the Urban Coastal Greenway Policy will be met through the application of the regulations below. Please refer to UCG Section 150 for the available coastal buffer options. UCG Sections 160 through 190 define the requirements of the Urban Coastal Greenway policy for each particular Zone. UCG Section 220 describes the policies and standards for Urban Coastal Greenways on RIDEM-designated brownfield sites, while UCG Section 230 describes the compensation options available in exchange for a reduction in UCG width. These regulations, when applicable and as determined by RICRMC, will supersede applicable sections of Table 1A, 110, 140, 150, 300.2, 300.7, 320, and 325 of the RICRMP. **All other RICRMP requirements shall remain in full force and effect.**

120.8 Application of the Urban Coastal Greenway Regulations.

- (a) The regulations herein shall apply to those projects or activities located solely within the boundaries of the Metro Bay Special Area Management Plan (Figure 1) and within the Council's coastal jurisdictional area.

- (b) Notwithstanding 120.8(a), a Council Assent is required for any alteration or activity that is proposed for (1) tidal waters; (2) shoreline features; and (3) areas contiguous to shoreline features. Contiguous areas include all lands and waters directly adjoining shoreline features that extend inland two hundred (200) feet from the inland border of that shoreline feature. A Council Assent is required for any alteration or activity any portion of which extends onto the most inland shoreline feature or its 200 foot contiguous area. Other activities may also require a Council Assent as specified in RICRMP Section 100.
- (c) Specific activities that trigger the Urban Coastal Greenway Regulations are explained in UCG Section 140.

130. Metro Bay Region Policies

130.1 Urban Coastal Greenways

- (a) The Council herein establishes an Urban Coastal Greenway (or “UCG”) Policy specifically for projects to be located exclusively within the Metro Bay SAMP boundary, and within the RICRMC jurisdiction of 200 feet inland from the coastal feature.
- (b) An “Urban Coastal Greenway” is a land area that:
1. is located within the Metro Bay Region and adjacent to a **coastal (shoreline) feature** on a development site;
 2. is, or will be, appropriately vegetated to provide **native plant communities** and/or **sustainable landscapes** which serve as a natural transition zone between the coast and adjacent upland development;
 3. provides public access adjacent to the shoreline; and
 4. is established and managed to protect aquatic, wetland, shoreline, and terrestrial environments from man-made disturbances and coastal flood hazards, while allowing for coastal economic development.
- (c) The Urban Coastal Greenway begins at the inland edge of the coastal feature.
- (d) At minimum, all applicants shall adhere to the Council’s requirements for setbacks and buffers as specified RICRMP Sections 140 and 150. An applicant, however, may select to use the Urban Coastal Greenway policy, as specified herein.
- (e) The establishment of an Urban Coastal Greenway is based upon the RICRMC’s legislative mandate to preserve, protect, develop, and where possible, restore Rhode Island’s coastal resources.
- (f) The Urban Coastal Greenway policy allows flexibility for urban sites that is different from the requirements of the RICRMP by four main tenets:
- The Urban Coastal Greenway policy allows the implementation of a sustainable landscape using plantings that are designed and managed for an urban environment.
 - The UCG policy strongly encourages a public access component that integrates the need for urban shoreline access with the spatial constraints of urban lots.
 - The UCG policy allows for compact greenways provided the applicant meets the compensation requirements in UCG Section 230.
 - The UCG policy encourages low impact development (LID) stormwater management techniques that improve water quality and enhance the developer’s ability to maximally utilize an urban lot.

- (g) The Urban Coastal Greenway setback and buffer requirements may be waived on a site-specific basis for Council-approved water-dependent uses (e.g., docks, marinas, etc.), as described in the RICRMP.

130.2 High Priority Conservation and Restoration Areas

High Priority Conservation Areas (HPCAs) and **High Priority Restoration Areas (HPRAs)** have been designated within the Metro Bay SAMP boundary as described in Appendix 3, and graphically depicted in Appendix 4. HPCAs are those sites with habitat quality rankings of C4 (highest quality habitat) to C1. Likewise, HPRAs are sites suitable for restoration, with habitat quality rankings of R3 (highest priority restoration) to R1. High priority habitat areas shall be preserved and enhanced to the greatest extent possible, and shall also be afforded a higher level of protection. Fragmentation of the Urban Coastal Greenway corridor (specifically the alongshore component) shall be avoided wherever possible and the development of contiguous habitats will be required wherever possible.

130.3 Coastal and Freshwater Wetlands

All coastal wetlands, including salt marshes that are located within the Metro Bay Region will be subject to the policies and standards in RICRMP Section 210.3. In those cases where impacts to coastal wetlands are unavoidable and approved by the Council, coastal wetland mitigation shall be conducted in accordance with RICRMP Section 300.12. Projects involving impacts or potential impacts to freshwater wetlands within the Metro Bay Region shall be subject to the Council's *Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast*. The Council's policy is to avoid, minimize, and mitigate for any potential adverse impact to coastal or freshwater wetlands.

130.4 Building Shading

The design of new structures and buildings should minimize shading of the shoreline and the Urban Coastal Greenway, such that the shoreline and UCG are not overwhelmed by tall and dense structures built to the setback line that rise vertically without relief from that line. Accordingly, structures should be designed to minimize the shadow cast upon the UCG and the adjacent shoreline. The RICRMC may negotiate and enter into agreements with the Metro Bay Region municipalities to allow for increased density on a development in exchange for appropriate building massing on the site.

130.5 Visual Elements

The scenic and visual qualities of the Metro Bay Region coastal area shall be considered and protected as a resource of public priority. Development should be sited and designed to protect views to and along coastal areas, minimize the alteration of natural land forms, be visually compatible with the character of surrounding areas, and, where feasible, restore and

enhance visual quality in visually degraded areas in accordance with RICRMP Section 330. Detailed landscape plans and artist renderings are helpful to aid the CRMC in project review.

140. Activities That Trigger Urban Coastal Greenway Requirements

140.1 Applicability

The following activities shall be subject to the Urban Coastal Greenway (UCG) requirements when an applicant chooses a UCG option, rather than the setback and buffer requirements in RICRMP Sections 140 and 150, and shall be applied when any portion of a project extends onto a shoreline feature or its 200 foot contiguous area within the Metro Bay Region.

- (a) **Development** – the construction of any new commercial, industrial, or residential structures as defined in RICRMP Section 300.3. This also includes structures accommodating a mix of uses within a single development, building, or tract, as allowed by a municipality.
- (b) **Redevelopment** – the alteration or reconstruction of any existing commercial, industrial, or multi-residential structures that results in:
 - 1. An increase of building or accessory structure footprints by twenty (20) per cent or more over existing conditions. as of the adoption date of the UCG regulations. . In computing the 20% or more expansion, all structures within 200 feet of the coastal feature shall be considered, as well as all structures subject to CRMC jurisdiction on the project site; or
 - 2. An increase of ten thousand (10,000) square feet of gross floor area of any building or group of buildings on a project site; or
 - 3. The addition of 20,000 square feet or greater of new impervious surface area (i.e., buildings or parking areas) on the project parcel. (Note: Excludes resurfacing of existing paved areas.)

140.2 Standards

- (a) Where a property owner owns adjoining lots, these lots shall be evaluated for the purposes of applying the Urban Coastal Greenway requirements to the project parcel, and ensuring that the appropriate UCG is established and fragmentation is avoided.
- (b) The entire extent of a development project must be submitted to the RICRMC, as part of any Preliminary Determination application, regardless of parcel ownership. The applicant must include any plans for phased development on the tract(s) of land so that the RICRMC can review proposals for jurisdiction and/or project impacts.
- (c) In any case where an applicant is submitting phased portions of a development project for consideration, the applicant shall not create any circumstance that would preclude the installation of the Urban Coastal Greenway on any phase of the project site. Accordingly, the applicant shall be cognizant that the Urban Coastal Greenway requirements may still apply

for any future development on the site, and subsequent phases of development must accommodate the UCG.

140.3 Other Projects

Projects that are subject to CRMC coastal jurisdiction within the Metro Bay Region, but do not meet the UCG thresholds specified in Section 140.1 above, may voluntarily apply the UCG requirements with CRMC approval in lieu of the setback and buffer standards in RICRMP Section 140 and 150.

140.4 Exemptions.

The Urban Coastal Greenway requirements shall not be applied to the following activities:

- (a) pre-existing structure(s), unless the structure(s) are razed for new development or meet the redevelopment threshold as defined above in UCG Section 140.1;
- (b) activities that qualify as maintenance pursuant to RICRMP Section 300.14;
- (c) new development of individual structures with less than 200 square feet in building footprint area;
- (d) commercial or industrial port activities including, but not limited to: bulk material transport; energy facilities; ship building, repair, maintenance; or any activity subject to US Coast Guard Maritime Security (MARSEC) jurisdiction (See 33 CFR parts 104, 105, and 106); or
- (e) projects on municipal or state-owned land may be considered compliant with relevant UCG requirements when the sole purpose of the project is to provide public access or other public amenities (e.g., ball fields, parks, playgrounds, public boat ramps or boating facilities, etc.).

150. Metro Bay Region Coastal Development Standards

150.1 Standards Applicable to Entire Development

In those cases where an Urban Coastal Greenway is part of a project, the applicant shall grant an easement for the UCG area to the RICRMC. The easement shall be recorded in the land evidence records of the appropriate municipality, and also with the Homeowner or Condominium Association, or other ownership documents, where applicable.

Applicants following the Urban Coastal Greenway policy shall adhere to the following standards on the entirety of the development parcel, as well as those as found in UCG Sections 150.2 through 250. All proposals will be subject to a fifteen (15) day public notice period. Following the 15-day public notice period, any proposal that fully satisfies these UCG requirements, and has not received a substantive objection in accordance with RICRMP Section 110.3, will be processed as a Category A (administrative) assent. Variance requests under Section 170 (Areas of Particular Concern), however, will not be processed as Category A applications.

- (a) 15% Minimum Vegetation Requirement: Applicants must include sustainably landscaped areas in their proposals to achieve vegetative coverage of at least 15% of the surface area over the entire development parcel. This vegetation requirement may be met by the UCG or through a combination of the UCG and additional plantings elsewhere on the property, including greenroofs. All planting plans shall be prepared by a licensed landscape architect (See RIGL § 5-51-16). The landscape plan shall use an appropriate mix of groundcovers, grasses, forbs, shrubs, and trees to achieve the goals of these regulations. The vegetated area may include landscaping elements of surface stormwater treatments, green roofs and bioretention areas, or other **Low Impact Development (LID)** vegetation alternatives. Within the UCG, the plantings should include an appropriate mix of trees, shrubs, and ground covers, with minimal use of high maintenance lawn sods and grasses.
- (b) Stormwater Management: All new development and redevelopment proposals shall meet the requirement of 100% on-site management of stormwater as required by RICRMP Section 300.6, and as specified in the most recent edition of the *Rhode Island Stormwater Design and Installation Standards Manual*) to control peak flow rates and volumes, and improve water quality. Applicants shall incorporate LID techniques such as i.e., filter strips, vegetated swales, vegetated detention ponds, bioretention areas, stormwater infiltration planters, green roofs, etc. to the maximum extent practicable. Permeable paving materials, vegetated buffers, and infiltration techniques should be used where ever feasible and desirable to support infiltration and groundwater recharge. If site conditions and/or other regulatory constraints do not allow these practices, appropriate non-vegetative stormwater treatment technologies (i.e., proprietary devices) may be permitted on a case-by-case basis. Applicants shall coordinate their stormwater management strategy with the RICRMC, RIDEM, and the municipality of jurisdiction. CRMC and DEM will coordinate for compliance with any required DEM Water Quality Certification or RIPDES permits. Furthermore, proprietary stormwater management technologies shall be maintained and monitored in accordance with UCG Section 250.

(c) **Public Access:** It is the RICRMC's preference that applicants provide alongshore and arterial public access pathways within the development site, as described in UCG Section 150.5. Public access shall always be required:

1. where the proposed project impacts upon public trust resources;
2. on sites that have existing public access areas; and
3. on CRMC-designated rights of way (ROW) or previous easements granted under RICRMP Section 335.

Public access may not be required for development activities subject to United States Coast Guard Maritime Security (MARSEC) jurisdiction.

(d) **Construction Setback:** A construction setback of 25 feet is required for all new and existing residential, commercial, mixed-use, and other structures to provide for fire, safety, and maintenance purposes. The setback is measured from the inland edge of the UCG or buffer.

1. At no time shall there be any private structures or encroachment into or above the UCG. Examples of such include, but are not limited to, decks, patios, balconies, restaurant or café tables and chairs, or private accessory structures. Such structures or uses shall be located within the setback area or other portion of the project site. These limitations must be clearly stated within the deed restrictions and applicable ownership documents for the project.
2. The setback may be reduced when the applicant can clearly demonstrate that the project and its subsequent use and maintenance will not result in the privatization of, or preclude public use of, the UCG.

(e) **Project Illumination:** All exterior light fixtures shall use shielding and glare control devices to shield surrounding areas from excessive light trespass and glare.

150.2 Urban Coastal Greenway Zones

- (a) Each UCG zone is described in its applicable section below and shown on Figure 2. Other applicable information and detailed zone maps are available for the Metro Bay Region using an Internet Map Service (IMS) accessible at:
<http://maps.provplan.org/sampmapper/>
- (b) UCG standards are applicable to all activities that meet the regulatory thresholds specified in UCG Section 140.
- (c) The UCG Zone in which the development is located, as described below and summarized in Figure 1, determines the specific Urban Coastal Greenway requirement.

- (d) Each UCG Zone allows at least two options for implementation of a vegetated area on a proposed development. In each Zone (with the exception of the Inner Harbor and River Zone), the first option requires the creation of a naturally vegetated buffer that is to be left undisturbed in accordance with RICRMP Section 150. Additional options within each Zone allow for a more compact vegetated area (an “Urban Coastal Greenway”), in exchange for various public amenities.
- (e) Reductions in the standard UCG widths shall only be permissible if the applicant provides compensation, as described in UCG Section 230.

150.3 General Standards for Urban Coastal Greenways

- (a) The Urban Coastal Greenway shall begin at the **inland edge** of the coastal feature. The coastal feature, the applicable UCG area, and construction setback must be clearly delineated on any site plans submitted for review to the RICRMC.
- (b) Applicants may utilize an averaging method, where compensatory UCG width is provided in some areas to allow encroachments within the standard UCG width in other areas.
- (c) The boundaries of the Urban Coastal Greenway easements shall be marked on all plans used for planning, permitting, and during construction. Additionally, the public access path and other public amenities (e.g., overlook, canoe or kayak launch, etc.) must be clearly delineated on site plans submitted for review to the RICRMC.
- (d) The UCG shall have appropriate signage approved by the RICRMC and the municipality, and its inland limits on all sites shall be marked on-site by permanent markers.
- (e) In the interest of public safety, project designs should facilitate the unobstructed observation of public spaces. These designs should:
 1. Provide pedestrians with a sense of direction while giving them some visible indication as to where access is encouraged or restricted.
 2. Provide a minimum number of access routes while allowing users some flexibility in movement.
 3. Use shrubbery and low-level plantings (those which attain heights no greater than 3 feet) within 10 feet of footpaths, with the exception of appropriately spaced trees. Plants in **managed landscapes** should be graded such that taller plants are next to walls or other structures.
 4. Avoid creating unused or unusable spaces or isolated pockets, except in areas designated for wildlife habitat.

5. Ensure that access opportunities enhance and complement shoreline observation opportunities.
 6. Provide for emergency access to public spaces and areas.
 7. Provide access for maintenance of stormwater treatment measures.
- (f) In order to ensure ease of access for emergency services, all projects shall be consistent with applicable municipal requirements. When hardened fire lanes are required, applicants are encouraged to use permeable paving materials (open grid pavers, etc.) that can be driven upon but also allow stormwater infiltration.
- (g) Encroachments into the Urban Coastal Greenway shall only be allowed by the RICRMC for:
1. Public access;
 2. Physical access to the coastal feature for public recreation;
 3. Emergency vehicle access;
 4. Public utility corridors;
 5. Structural shoreline protection; and
 6. UCG or utility maintenance corridors.
- (h) All Urban Coastal Greenways shall be dedicated for public use by way of a Conservation Easement granted to the CRMC that runs with the land and shall be recorded as such in the land evidence records of the applicable municipality.

150.4 Vegetation Standards for all Urban Coastal Greenways

- (a) The entirety of the Urban Coastal Greenway shall be vegetated with the exception of approved public access pathways (as described in UCG Section 150.5). The UCG shall be wholly vegetated and maintained with native plant communities and/or sustainable landscapes using a mixture of groundcover, shrubs, and trees. Stormwater from any public access path shall be directed into vegetated areas designed for stormwater treatment.
- (c) The vegetation within an Urban Coastal Greenway shall be properly managed in accordance with the standards contained in Section 240 of this document. In cases where **native** or **sustainable vegetation** does not exist within a UCG, or non-sustainable invasive vegetation currently occurs on the site, the Council may require restoration efforts that include, but are not limited to, replanting the UCG with non-invasive native or sustainable plant species. These species shall be chosen from the most current edition of *Sustainable Trees and Shrubs*, from the University of Rhode Island Cooperative Extension office, or another appropriate list approved by the RICRMC. All plant species utilized shall be primarily low maintenance species with maximum habitat value. Salt-

tolerant species shall also be included where site conditions warrant. The criteria for selection of appropriate non-invasive native or sustainable species are:

1. ability to perform the desired function(s);
2. anticipated survival and hardiness given site conditions, with minimal (if any) application of pesticides and fertilizer;
3. high wildlife value; and
4. aesthetic value.

(d) Urban Coastal Greenways shall be designed as native plant communities and/or sustainable landscapes using noninvasive native and/or sustainable species of vegetation in order to promote the Council's goal of preserving, protecting, and restoring ecological systems. The Council may permit alterations to Urban Coastal Greenways that facilitate the continued enjoyment of Rhode Island's urban coastal resources. All alterations to a UCG or alterations to the natural vegetation (i.e., areas not presently maintained in a landscaped condition) within the Council's jurisdiction shall be conducted in accordance with the standards contained in this section, as well as all other applicable policies and standards of the Council. In order to ensure compliance with these requirements, the Council will require applicants to submit an **Urban Coastal Greenway Management Plan**. In cases where the preservation, protection or enhancement of wildlife habitat is the primary management goal (such as the Area of Particular Concern Zone and/or specific sites with high quality habitats), as determined by the RICRMC, native plant communities shall be preferred over sustainable landscapes.

(e) Existing non-invasive vegetation, especially trees, shall be preserved in the Urban Coastal Greenway to the maximum extent practicable. Removal of these species will be allowed only after the Council has reviewed and approved a UCG Management Plan prepared by a RI-licensed landscape architect and in accordance with standards and specifications found in the *Urban Coastal Greenway Design Manual* (in preparation).

150.5 Public Access Standards for all Urban Coastal Greenways

Wherever public access is provided, the following public access standards shall be met:

- (a) The public access component shall be located within the UCG identified for the project. In certain cases, the RICRMC may allow the public access component to be located within the construction setback or other portion of the site as conditions may require. Applicants, however, must ensure that the UCG primary public access path on their development site connects with any existing UCG public access path on adjacent parcels.
- (b) All public access paths shall be compliant with Americans with Disabilities Act (ADA) standards for accessible design.

- (c) The Council prefers that all new multi-residential, commercial, and mixed-use developments provide primary (alongshore) public access within the Urban Coastal Greenway. These **primary public access pathways** shall be a minimum of eight (8) feet in width to accommodate pedestrians, but may be wider if designed to accommodate both pedestrian and bicycle access. Projects must design the UCG pathway to provide an extension of adjacent existing pedestrian or bicycle pathways, if consistent with a municipal or state pedestrian or bike path access plan.
- (d) All public access pathways should be constructed of a pervious surface. In those cases where pathways are constructed of pervious materials for bicycle access or to be consistent with existing adjacent pervious surface paths (e.g., Waterplace Park), the project must include stormwater treatments to minimize stormwater runoff, as described in the *Urban Coastal Greenway Design Manual* (in preparation). Public access paths shall be designed to have a relatively flat profile and cross section to prevent stormwater runoff from eroding the path surface or adjacent soils. When paths are located directly adjacent to the coastal feature, they should be angled slightly to cause stormwater runoff to flow inland for treatment (e.g., bioretention area), rather than toward the coastal feature.
- (e) Each parcel with a UCG shall include at least one secondary (arterial or perpendicular) access path leading to the linear UCG public access path, unless adjoining parcels share a **secondary public access path** as described in UCG Section 150.5(g).
1. The access path must emanate from a public place. The secondary access path should be a minimum of eight (8) feet in width to accommodate pedestrian traffic, but may be up to twenty (20) feet in width when emergency vehicle access is necessary. In the latter case, the pathways must be capable of supporting emergency and maintenance vehicles.
 2. The secondary access path shall connect sidewalk traffic with the alongshore UCG path, and may be a meandering path, as long as erosion is minimized. All public access pathways shall be recorded within the land evidence records and shall run with the land. The limited liability provision stated in RICRMP Section 335 shall apply to these public access pathways.
- (f) Each Urban Coastal Greenway must include adequate provisions for emergency vehicle access paths from the nearest street to the shoreline. These vehicular paths shall be constructed of a permeable surface capable of supporting emergency vehicles.
- (g) Each project must provide at least one secondary public pedestrian or vehicular access pathway per 500 linear feet of shoreline. Adjoining parcels may share secondary pedestrian or vehicular access paths on their shared boundary, where applicable. The RICRMC may waive the 500-foot secondary pathway standard if the applicant provides ten (10) percent more public parking spaces than required in section 150.5(h), below, and can demonstrate that there is adequate available secondary public access.

- (h) In order to facilitate public access to the shoreline, each development with a UCG shall include a minimum of two (2) public parking spaces adjacent to an access point or incorporated within a project, and an additional space per 100 linear feet of shoreline (where “linear” refers to the shortest distance between lot boundaries) within the parcel. The placement of the public parking spaces shall be decided in consultation with the RICRMC and the municipality of jurisdiction. In cases where the project is directly adjacent to public parking, (defined as on-street parking and off-street parking available to the general public), such spaces may be included for purposes of satisfying the public parking requirements of this section
- (i) Acknowledgement of Existing Public Access.

The CRMC may allow reduced public access requirements within lots containing preexisting public access, provided there is no net loss of access and the following standards are met:

- (1) Where existing public access pathways and **public roads** occur between the coastal feature and the development parcel(s), the primary (alongshore) public access and construction setback requirements may be waived.
- (2) Where public roads are immediately adjacent to the sides of the development perpendicular to the coastal feature, these public roads may count toward the Urban Coastal Greenway secondary public access requirements. The road(s) must be usable for pedestrian and/or emergency vehicle access, as appropriate.

150.6 Stormwater Standards for all Urban Coastal Greenways

- (a) The RICRMC encourages the use of low impact development (LID) techniques, as described in the *Urban Coastal Greenway Design Manual* (in preparation), that distribute infiltration methods throughout the development site to the maximum extent practicable. These LID techniques may include, but are not limited to:
1. Minimization measures including decreased clearing and grading or reducing the use of pipes, curbs, and gutters;
 2. Using alternative surfacing materials such as gravel, cobble, wood mulch, grass pavers, turf blocks, natural stone, and concrete pavers in cross walks, for example;
 3. Discharge of runoff into open drainage systems, vegetative swales, and other bioretention areas to slow runoff, reduce discharges, and encourage more infiltration and evaporation;
 4. Integration of, bioretention, biofiltration, storage, and capture of runoff systems into the site;

5. Planting large trees within a designated UCG and the site in general to promote evapotranspiration, restore urban forests, provide scenic relief, and vegetative screening;
 6. The installation of green roofs to retain and naturally filter stormwater runoff;
 7. The use of cisterns to temporarily store rainwater that can subsequently be used for irrigation of the property; and
 8. The incorporation of rain gardens or other bioretention systems.
- (b) All persons submitting UCG project stormwater plans must have the applicable University of Rhode Island Cooperative Extension certification in the design of LID stormwater techniques. (Note: This requirement will only be implemented when the URI LID certification process is established.)
- (c) Stormwater treatment should, where possible, be designed to constitute a landscape amenity. Applicants should meet this goal primarily through vegetative means, in part by incorporating land shaping to create bioretention areas capable of treating runoff. When site topography necessitates traditional detention ponds or other non-vegetated means of stormwater treatment, these structures must be located within the setback or other portion of the project site, and not within the UCG.
- (d) In those cases where proprietary stormwater management technologies are used, they shall be maintained and monitored in accordance with UCG Section 250. In addition, these devices shall be located within the setback or other portion of the project site.
- (e) Untreated stormwater runoff shall not drain directly into coastal waters. Runoff shall be detained and slowly released through the use of best management practices (BMPs), as outlined in the *Urban Coastal Greenway Design Manual* (in preparation). Projects shall meet the requirement of 100% on-site management of stormwater as required by RICRMP Section 300.6, and as specified in the most recent edition of the *Rhode Island Stormwater Design and Installation Standards Manual*, to control peak flow rates and volumes, improve water quality, and discharge non-erosively to tidal waters. Applicants shall incorporate LID techniques such as filter strips, vegetated swales, bioretention areas, stormwater infiltration planters, green roofs, etc. to the maximum extent practicable. LID techniques may be located with the UCG provided they are well landscaped and create a public amenity within the UCG.
- (f) All stormwater management techniques shall have a maintenance plan submitted as part of the RICRMC application package, in accordance with the most recent edition of the *RI Stormwater Design and Installation Standards Manual*. Maintenance provisions shall be tailored to the specific stormwater management techniques that are proposed for the site, and shall include maintenance practices and frequency.

150.7 Structural Shoreline Protection Standards for all Urban Coastal Greenways

- (a) Riprap revetments shall be constructed with appropriately sized quarry stone in accordance with the standards specified in RICRMP Section 300.7. . The revealed base of a revetment shall not be further seaward than the Mean High Water Line (MHWL). Revetments should be designed to account for sea level rise.
- (b) Existing shoreline protection structures may be utilized where consistent with RICRMP Section 300.14. In some locations within the Metro Bay Region, there are existing bulkheads and seawalls constructed of local granite material. The historic value of structural shoreline protection shall be preserved or restored wherever feasible.
- (c) When the RICRMC finds seawall structural shoreline protection to be necessary, construction materials other than steel shall be used wherever possible. When steel is necessary, the seawall shall be faced with a similar material used for other seawalls (e.g., granite blocks) in the vicinity for consistency of appearance. Additionally, seawalls should be designed to account for sea level rise.
- (d) When structural shoreline protection is deemed necessary, the applicant may receive credit toward the 15% vegetation requirement for revetments that incorporate sustainable and natural low shrubs and ground covers. To protect revetment structural integrity, trees must not be planted directly on the revetment. No stormwater treatment or public access shall be included upon the revetment.

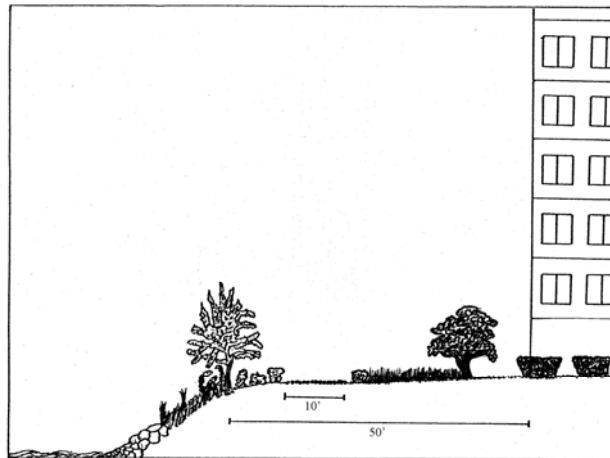


Figure 6. Hypothetical site plan showing a vegetated revetment on a site with parking on the ground level of the new structure. Drawing by Thomas VanHollebeke.

- (e) At the discretion of the RICRMC, terracing may be allowed within the UCG and setback (See Figure 7) when elevation changes are needed to meet flood zone requirements. Terraced slopes within the UCG, however, must be vegetated and not armored with stone or other hard materials. If non-vegetated terraced slopes are necessary, then they cannot be included as part of the UCG area.

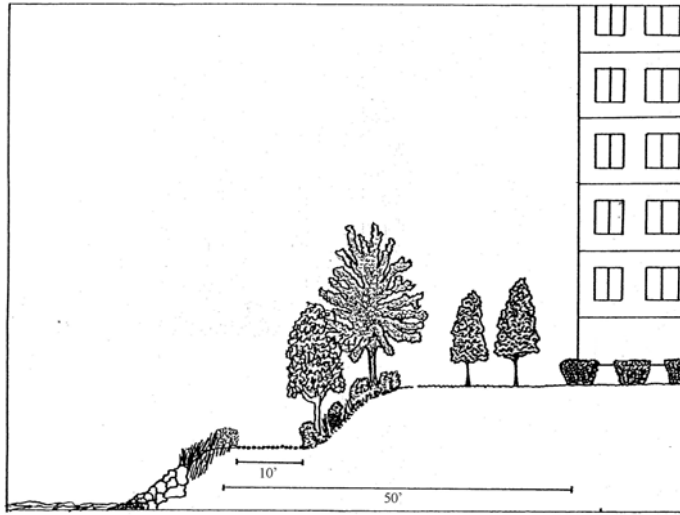


Figure 7. Hypothetical site plan showing a terraced UCG. Drawing by Thomas VanHollebeke.

150.8 Prohibitions

- (a) Upon completion of a project (or phase of a project) and its Urban Coastal Greenway, the following activities and uses shall be prohibited within UCG, :
1. Petrochemical Storage;
 2. Storage of other hazardous materials;
 3. Parking or automobile storage within the UCG;
 4. Application of chemicals (e.g., pesticides, fertilizers, etc.) that have not been approved by the RICRMC;
 5. Storage or stockpiling of mulch, compost, or other organic materials;
 6. Storage or stockpiling of construction materials;
 7. Fueling and servicing of equipment and other motorized vehicles; and
 8. Recycling of construction materials.
- (b) No structure, building, roof, or skywalk subject to the UCG may be constructed over tidal waters, with the exception of public infrastructure or public access, according to the requirements set forth in RICRMP Section 130.
- (c) At no time shall any residential or commercial activity usurp the full use and enjoyment of the UCG. This includes the placement of decks, patios, or restaurant/cafe tables, even on a temporary basis, within the UCG.
- (d) Prohibitions may only be relieved through Special Exceptions, granted by the Council.

160. Residential Zone

160.1 Definition

The Residential Zone primarily encompasses the area south from the Johnson and Wales University Campus in Cranston to the southern tip of Pawtuxet Neck, in addition to some areas of Providence and East Providence, as shown in the Urban Coastal Greenway Zone Map (Figure 2), and is predominantly composed of single and two-family residences.

160.2 Policy

- (a) The Urban Coastal Greenways requirements do not apply to single or two-family residences within the Residential Zones. When an applicant wishes to undertake new construction or alteration of an existing single or two-family structure within a Residential Zone, it is the policy of the RICRMC to apply the setback and buffer requirements in accordance with sections 140 and 150, respectively, of the RICRMP.
- (b) Applicants proposing to construct or alter any commercial development or multi-residential (equal to or greater than 3 units) project within a Residential Zone may choose either of the following options:
 - Option 1:** The project must meet the setback and buffer requirements of RICRMP Section 140 and 150 (Appendix 1); or
 - Option 2:** The project must meet the Development Zone standards within the Urban Coastal Greenway Policy (See UCG Section 190).

170. Area of Particular Concern Zone

170.1 Definition

The Area of Particular Concern (APC) Zone incorporates areas within the Metro Bay SAMP boundary that have been identified either as highly significant habitats (High Priority Conservation or Restoration Areas) or as areas of significant recreational value. The conservation, restoration, and recreation designations were identified using a ranking system that includes habitat quality, use of the site by wildlife, presence of rare species, geographic relationships (i.e., contiguous parcels with habitat value), and restoration potential. The APC Zone is delineated in the Urban Coastal Greenway Zone Map (Figure 2), and the ranking system is described in Appendix 3.

170.2 Policy

- (a) Within the APC Zone, it is the policy of the RICRMC to maintain and restore natural vegetated coastal buffers with maximum widths to protect the valuable habitats and/or contiguous vegetated corridors contained within the zone (Figure 9). The Council does not support projects that propose to alter existing natural areas having high environmental value for habitat, recreation, or scenic quality, as delineated on the Urban Coastal Greenway HPCA and HPRA Map (Appendix 4). Accordingly, projects that propose to alter these habitats are inconsistent with this policy, and are strongly discouraged.
- (b) Applicants have a choice of either **Option 1** (standard buffer width) or **Option 2** (variance request) as detailed below for projects located in the APC Zone.
- (c) Any public access plans should be consistent with Section 335 of the RICRMP.
- (d) Projects under either option must meet the 15% minimum vegetative cover and 100% stormwater management requirements.

170.3 Standards

Option 1: Standard buffer width.

- (a) All development proposals within the APC Zone that completely meet the requirements under this option will be processed as Category A applications in accordance with the RICRMP.
- (b) Applicants choosing this option must adhere to the standard buffer width as determined in Appendix 2. In addition, all structures must be set back 25 feet from the inland edge of the buffer.
- (c) The buffer must be comprised of a mix of native plant species and must remain in a natural and undisturbed state. At the discretion of the CRMC, limited buffer

zone management activities may be authorized only when it is clearly demonstrated that the habitat quality of the affected area will not be diminished.

- (d) The applicant must provide a public access plan in accordance with Section 335 of the RICRMP.
- (e) Under Option 1, variances to the buffer width are not permissible.

Option 2: Variance request.

- (a) All development proposals within the APC Zone seeking a buffer variance shall be processed as Category B applications in accordance with the RICRMP.
- (b) An applicant may only reduce the standard APC Zone buffer width through the granting of a variance by the RICRMC in accordance with UCG Section 210. At no time shall any applicant provide a buffer less than 50% of the required buffer width, as determined in Appendix 2. Furthermore, the minimum buffer width within an APC Zone shall be twenty-five (25) feet.
- (c) Any proposals for a buffer less than 50% of the required APC Zone buffer width shall require a special exception in accordance with RICRMP Section 130.
- (d) All structures must be set back 25 feet from the inland edge of the buffer.
- (e) In the event that a buffer variance is approved, the applicant must compensate for the difference between the required buffer width and any reduced buffer width at twice the rate described in UCG Section 230.1. Variance requests for APC zone buffers may not use the compensation measures described in Section 210.2 to meet their obligations under this section.

180. Inner Harbor and River Zone

180.1 Definition

This zone incorporates extensively developed areas where, on the majority of parcels, public infrastructure (i.e., roads and/or sidewalks) already exists between the coastal feature and the proposed development at the time of promulgation of the Urban Coastal Greenway Regulations. The Inner Harbor and River Zone (IHRZ) specifically encompasses the area upriver and inland from the Providence hurricane barrier and along the Woonasquatucket and Moshassuck Rivers, including the **Capital Center District (CCD)**, to the extent of the Metro Bay SAMP boundary as depicted in the Urban Coastal Greenway Zone Map (Figure 2). The CCD is defined as the area bounded by I-95, Smith Street, Francis Street, Gaspee Street, Canal Street, Steeple Street, Exchange Terrace, and West Exchange Terrace, and as depicted on Figure 2.

180.2 Policy

It is the policy of the RICRMC to allow reduced UCG widths within this zone, due to the spatial constraints and existing hardscapes within these highly urbanized corridors, as well as the preexisting public access available there. Proposed developments within the Inner Harbor and River Zone that will incorporate existing hardscapes shall strive to achieve the maximum vegetation practicable within the Urban Coastal Greenway.

180.3 Prohibitions

Within the Inner Harbor and River Zone and upon completion of a project (or phase of a project) and its Urban Coastal Greenway, the following activities and uses shall be prohibited within 50 feet of the shoreline:

1. Petrochemical storage;
2. Storage of other hazardous materials;
3. Application of chemicals (e.g., pesticides, fertilizers, etc.) that have not been approved by the RICRMC;
4. Storage or stockpiling of mulch, compost, or other organic materials;
5. Storage or stockpiling of construction materials;
6. Fueling and servicing of equipment and other motorized vehicles; and
7. Recycling of construction materials.

180.4 Standards

The majority of parcels located within the Inner Harbor and River Zone are separated from the coastal feature by an existing public roadway or sidewalk system. In some portions of the IHR Zone, there are no public roadways or sidewalks along the river (e.g., the area west of Hemlock Street). Accordingly, project options will be determined by the proximity and existence of public roadways and sidewalks, as follows below. Applicants have the option of having projects reviewed under and adhering to the setback and buffer requirements set forth

in RICRMP Sections 140 and 150 in lieu of the other options offered below. Projects located within the Capital Center District will be subject to Option C.

IHRZ-A: Public roadway and/or pathway exist between the project and coastal feature

Option A: Standard UCG Width (20 feet).

- (a) All development proposals within the IHRZ that completely meet the requirements under this option will be processed as Category A applications in accordance with the RICRMP provided there are no substantive objections during the 15-day public notice period.
- (b) The standard Urban Coastal Greenway width within the Inner Harbor and River Zone under Option A shall be twenty (20) feet. If the distance between the inland edge of the coastal feature and the lot line is greater than twenty (20) feet, the applicant must still satisfy the 15% vegetation and 100% stormwater requirements described in UCG Section 150.1, and any other applicable RICRMP requirements.
- (c) All structures must be set back appropriately from the inland edge of the UCG to meet the criteria specified in UCG Section 150.1(d).
- (d) All of the standards specified within UCG Sections 150 and 200 to 250 shall apply, with the following exceptions:
 - 1. Public access requirements shall be met in accordance with UCG Section 150.5 and may be contained within the setback.
 - 2. Where existing public access pathways and/or public roads occur between the coastal feature and the development parcel(s), the primary (alongshore) public access and construction setback requirements may be waived at the discretion of the CRMC.
 - 3. Where public roads and/or sidewalks are immediately adjacent to the sides of the development perpendicular to the coastal feature, these public roads and/or sidewalks may count toward the Urban Coastal Greenway secondary public access requirements at the discretion of the CRMC. Roads must be usable for pedestrian and/or emergency vehicle access, as appropriate.

IHRZ-B: Public roadway or walkway does not exist between the project and coastal feature

Option B-1: Standard UCG Width (50 feet).

- (a) All development proposals within the IHRZ that completely meet the requirements under this option will be processed as Category A applications in accordance with the RICRMP provided there are no substantive objections during the 15-day public notice period.
- (b) Where there is no existing public infrastructure (roads and/or sidewalks) between the coastal feature and the proposed development at the time of promulgation of the Urban Coastal Greenway Regulations, the standard Urban Coastal Greenway width shall be fifty (50) feet.
- (c) All structures must be set back appropriately from the inland edge of the UCG, to meet the criteria specified in UCG Section 150.1(d).
- (d) All of the standards specified within UCG Sections 150 and 200 to 250 shall apply.

Option B-2: Compact UCG Width (20 feet).

- (a) All development proposals within the IHRZ that completely meet the requirements under this option will be processed as Category A applications in accordance with the RICRMP provided there are no substantive objections during the 15-day public notice period.
- (b) Under this option, the UCG width may be reduced to a minimum of twenty (20) feet. If an applicant chooses this option, then they must provide compensation in accordance with UCG Section 230.
- (c) All structures must be set back appropriately from the inland edge of the UCG, to meet the criteria specified in UCG Section 150.1(d).
- (d) All of the standards specified within UCG Sections 150 and 200 to 250 shall apply. Furthermore, the applicant must also provide twice (2X) the area (in square feet) of public amenities that are required in UCG Section 150.5. For example, if the area of the primary public access path within a UCG on a project site is 1600 square feet (8' wide by 200' long path), then the applicant in this case would have to provide an additional 1600 sq. ft. in public amenities. Some examples of additional public amenities include, but are not limited to: pedestrian bridges, canoe/kayak launching ramps or docks, observation platforms adjacent to tidal waters, etc. This access may be distributed around the development site or otherwise as approved by the RICRMC. (Note: Bridge designs must have sufficient clearance for recreational uses of the rivers and tidal waters.)

IHRZ-C: Capital Center District

Option C: Capital Center District (CCD).

- (a) All development proposals within the IHRZ that are located within the CCD shall be reviewed in accordance with the Memorandum of Understanding between the CRMC and the Capital Center Commission dated February 2005, and Section 520.5 of the Providence Harbor Special Area Management Plan (Note: this will be incorporated into the Metro Bay SAMP).
- (b) Under this option, the standard Urban Coastal Greenway width shall be 20 feet. Projects will be processed administratively as Category A applications.
- (c) Projects within the CCD may seek a reduction in the UCG width up to a 25% for a total width not less than 15 feet. These variance requests may be granted administratively with concurrence of the CRMC Chairman.
- (d) All of the other UCG requirements specified in UCG Sections 150 and 200 to 250 shall apply to the project. This includes 100% stormwater management and 15% vegetative cover requirements specified in UCG Section 150 and compensation in accordance with UCG Section 230 for any reduction from the 20-foot standard UCG width.

190. Development Zone

190.1 Definition

The Development Zone is composed of areas that have been specifically designated for high-density development by the local municipality or the state. Many parcels within this zone are formerly filled tidelands. This zone also incorporates large parcels within the Metro Bay SAMP boundary that may have been primarily industrial in their former use(s) and are therefore constrained by the existence of utility corridors and their associated easements, and/or the need for brownfield remediation prior to development. The boundaries of this Zone are identified on the Urban Coastal Greenway Zone Map (Figure 2).

190.2 Policy

It is the policy of the RICRMC to establish a continuous UCG within the areas designated as Development Zones that will satisfy the overall goals of the Urban Coastal Greenway policy, as well as the specific development standards described in UCG Section 150.

190.3 Standards

All development proposals within the Development Zone that completely meet the requirements under one of the options below (Options 1-4) will be processed as Category A applications in accordance with the RICRMP provided there are no substantive objections during the 15-day public notice period. Applicants have the option of having projects reviewed under and adhering to the setback and buffer requirements set forth in RICRMP Sections 140 and 150 in lieu of the other options offered below.

Option 1: Standard buffer width.

- (a) Applicants choosing this option must adhere to the standard buffer width as determined in Appendix 2. In addition, all structures must be set back 25 feet from the inland edge of the buffer.
- (b) The buffer must be comprised of a mix of native plant species and remain in a natural and undisturbed state.
- (c) Variances to the buffer width are not permissible under Option 1.

Option 2: Standard UCG Width (100 feet).

- (a) The standard Urban Coastal Greenway width within a Development Zone shall be one hundred (100) feet. All structures must be setback from the inland edge of the UCG in accordance with UCG Section 150.1(d).

- (b) All of the standards specified within UCG Sections 150 and 200 through 250 shall apply.
- (c) The project should provide public access in accordance with UCG Section 150.5.
- (d) If applicants choose not to install and maintain public access, then **mitigation** must be provided in accordance with UCG Section 200.

Option 3: Compact UCG Width (50 feet).

- (a) Applicants may choose a compact UCG width of fifty (50) feet, however, compensation must be provided in accordance with UCG Section 230 for the difference in width between Option 2 and 3. All structures must be setback from the inland edge of the UCG in accordance with UCG Section 150.1(d).
- (b) All of the standards specified within UCG Sections 150 and 200 through 250 shall apply.
- (c) The project should provide public access in accordance with UCG Section 150.5.
- (e) If applicants choose not to install and maintain public access, mitigation must be provided in accordance with UCG Section 200.

Option 4: Small Lot Exemption (Compact UCG – less than 50 feet).

- (a) It is the policy of the RICRMC to allow for a compact UCG width of not less than 25 feet for qualifying small Development Zone lots due to the spatial constraints inherent on very small lots. In order to meet the vegetation target and on-site stormwater management requirements for Urban Coastal Greenways, designs for small lots are encouraged to include LID treatments, such as green roofs, bioretention areas, and stormwater recycling.
- (b) Small Lots shall be defined as lots with a depth of less than 300 feet. Lot depth shall be measured as the shortest distance from the front lot line to the rear lot line. For lots where the front and rear lot lines are not parallel, the average lot depth shall be determined by measuring the distance between the midpoints of the front and rear lot lines.
 - 1. “Front lot line” shall be the lot line that demarcates the inland limit of the lot.
 - 2. “Rear lot line” shall be the lot line along the shore.
- (c) Development Zone lots may qualify for a Small Lot Exemption if they are lawfully established lots as of (UCG policy adoption date) whose shallow depth

of less than 300 feet may constrain their ability to meet the UCG standards as measured from the inland edge of a coastal feature, as set forth by the RICRMC.

- (d) The Urban Coastal Greenway width within Small Lots shall be no less than twenty-five (25) feet. All structures must be setback from the inland edge of the UCG in accordance with UCG Section 150.1(d).
- (e) Applicants must provide compensation in accordance with UCG Section 230 for the difference between the required width in Options 3 (50 feet) and the Option 4 width (between 25-49 feet).
- (f) All of the standards specified within UCG Sections 150 and 200 through 250 shall apply, with the following exceptions:
 - 1. Where existing public access pathways and/or public roads occur between the coastal feature and the development parcel(s), the primary (alongshore) public access and construction setback requirements may be waived.
 - 2. Where public roads are immediately adjacent to the sides of the development perpendicular to the coastal feature, these public roads may count toward the Urban Coastal Greenway secondary public access requirements. The road(s) must be usable for pedestrian and/or emergency vehicle access, as appropriate.
 - 3. Small lots may be excluded from the requirement for additional public parking spaces per 100 feet of linear shoreline (UCG Section 150.5(h)).

200. Mitigation Requirements in Lieu of Public Access

200.1. When an applicant chooses to adhere to the setback and buffer requirements of RICRMP Sections 140 and 150, rather than the UCG requirements with public access, the applicant must mitigate for any public access that would have been installed as part of a UCG on the development site. This mitigation shall consist of the purchase and establishment of a habitat conservation or habitat restoration project. The area to be conserved or restored must be an identified High Priority Conservation Area (HPCA) or High Priority Restoration Area (HPRA) within the Metro Bay SAMP boundary, preferably within the municipality in which the development project is located.

200.2. Mitigation shall occur on a 2:1 basis. Specifically, the area to be restored must be twice the difference between the buffer width required under Appendix 2 and the Urban Coastal Greenway width proposed for the site (Figure 12). The restoration must be completed and its success secured for a minimum of one (1) growing cycle before a development project may proceed.

200.3. The completed mitigation and appropriate documentation, including legal documentation of a permanent conservation easement on the mitigation site, must be presented to the RICRMC before the proposed development may proceed.

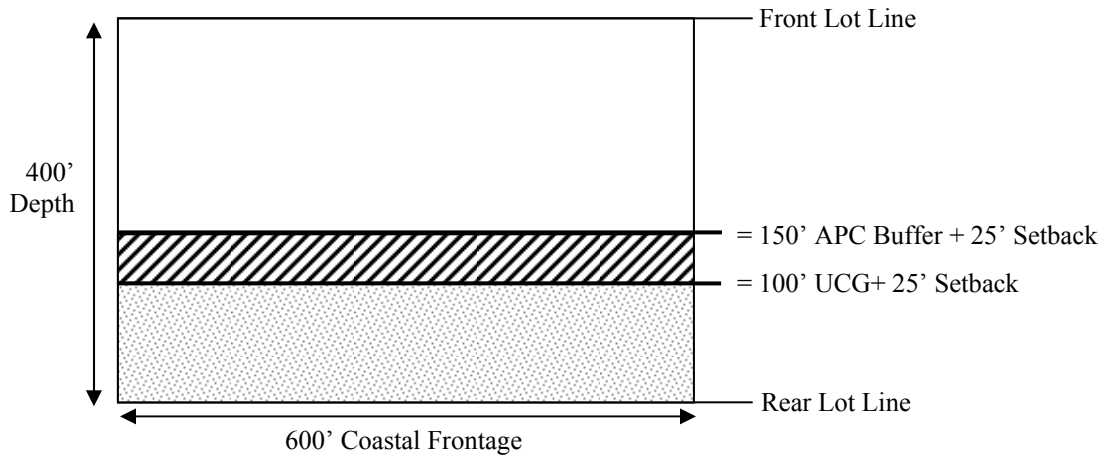


Figure 8. Example of a project in which the applicant follows Development Zone Option 2 and chooses not to provide public access. The applicant would therefore have to provide a total mitigation area of 60,000 square feet – twice the amount of lost green space on the development site (50 feet x 600 feet = 30,000 square feet), in accordance with UCG Section 200. In this particular example, the implementation of a 100 foot Urban Coastal Greenway would provide vegetative coverage of 25% of the entire development site.

210. Variance Requests

210.1 Applicants may request a variance under the following options only. Variance requests must be submitted in writing and meet the six criteria listed below in Section 210.2.

- APC Zone Option 2
- IHRZ Capital Center District

210.2 The application shall be granted an Assent only if the Council or Executive Director, as applicable, finds that the applicant has met the following six criteria:

- (a) The proposed alteration conforms with applicable goals and policies in Parts Two and Three of the Coastal Resources Management Program.
- (b) The proposed alteration will not result in significant adverse environmental impacts or use conflicts, including but not limited to, taking into account cumulative impacts.
- (c) Due to conditions at the site in question, the applicable standard cannot be met.
- (d) The modification requested by the applicant is the minimum variance to the applicable standard necessary to allow a reasonable alteration or use of the site.
- (e) The requested variance to the applicable standard is not due to any prior action of the applicant's predecessors in title. With respect to subdivisions, the Council will consider factors as set forth in 210.3 below in determining the prior action of the applicant.
- (f) Due to the conditions of the site in question, the standard will cause the applicant an undue hardship. In order to receive relief from an undue hardship an applicant must demonstrate *inter alia* the nature of the hardship and that the hardship is shown to be unique or particular to the site. Mere economic diminution, economic advantage, or inconvenience does not constitute a showing of undue hardship that will support the granting of a variance.

210.3 In reviewing requests for buffer zone variances for subdivisions of five (5) lots or less, the Council will review on a case-by-case basis the extent to which prior action of the applicant or its predecessor in title created or caused the need for the variance, whether the applicant has created the need for the variance by the subdivision, and whether the subdivision complies with local zoning requirements.

210.4 Relief from a standard does not remove the applicant's responsibility to comply with all other UCG and RICRMP requirements.

210.5 Prior to requesting approval for a CRMC variance, in those instances where a variance would be obviated if a variance for a setback were acquired from the local municipality, the applicant must first exhaust his remedies before the local municipality.

220. Brownfield Redevelopment within the Metro Bay Region

220.1 Urban Coastal Greenway Policies on Brownfields

- (a) RIDEM-designated brownfield sites shall receive additional consideration with regard to UCG requirements. The Council has established a maximum application fee of \$5000 for all DEM-designated brownfield development projects (See RICRMP Management Procedures)
- (b) Brownfield sites pose unusual economic constraints, given the common need for remediation that may result in significant expense to the developer. The Council encourages thoughtful redevelopment of these contaminated sites, and believes that it is possible to proceed with such redevelopment in a manner that improves the natural environment while allowing for the fiscal realities of such an endeavor.
- (c) It is therefore the policy of the RICRMC to require the maximum UCG width practicable within brownfield sites while allowing for flexibility in the implementation of the UCG on these sites, based upon the applicant meeting the criteria defined in UCG Section 150, above for vegetation targets, stormwater treatment and public access. See the *Urban Coastal Greenway Design Manual* (in preparation) for recommended approaches to stormwater treatment and habitat improvement in brownfield sites.

220.2 Urban Coastal Greenway Standards on Brownfields

- (a) Brownfield sites shall adhere to the Urban Coastal Greenway standards and policies regarding setbacks, view corridors, and public safety as stated in this document, to the maximum extent practicable..
- (b) All development proposals for brownfield sites within RICRMC's jurisdiction shall require a pre-application meeting including the applicant, his/her planning and design staff, and representatives of the RICRMC, the Rhode Island Department of Environmental Management (RIDEM) Offices of Waste Management and Water Resources, and the municipality of jurisdiction. This meeting shall take place after RIDEM has notified RICRMC that the review of the investigation is complete. It is intended that this pre-application meeting be the first step in the remedial design process after a brownfield development proposal has been submitted, and is further intended to streamline the multi-agency regulatory process for proposed developments on these sites. Agency (RICRMC and RIDEM) and municipal representatives at this pre-application meeting will consider the applicant's proposed designs to ensure that the proposal satisfies RICRMC's Urban Coastal Greenway requirements, the RIDEM's brownfield and stormwater requirements, and the municipality's zoning ordinances.
- (c) Where the Executive Director, in consultation with DEM Site Remediation staff and CRMC staff, determines that a particular UCG standard poses a risk or is impractical

due to site remediation requirements, the Executive Director may waive or reduce such requirement.

- (d) An applicant may request of RIDEM, that a proposal that satisfies the requirements of the Urban Coastal Greenway policy be used to offset some or all of the State's Natural Resource Damage Claims at the site (including claims for additional assessment).
- (e) Under circumstances at a brownfield site where it is desirable to limit infiltration, traditional stormwater infiltration techniques shall not be used in the Urban Coastal Greenway. The goal of total on-site stormwater treatment will still apply on brownfield sites, although the constraints of each site will be taken into consideration during the application process. Applicants are therefore encouraged to utilize vegetative stormwater management techniques such as green roofs and rain gardens with shallow-rooting plants, as well as alternative landscaping/land shaping (i.e., raised planting beds) to allow for the maximum possible on-site treatment of stormwater. Refer to the *Urban Coastal Greenway Design Manual* (in preparation) for descriptions of recommended alternatives and reference sources for additional technical information regarding the implementation of those alternatives. These alternative stormwater abatement techniques shall protect the integrity of the containment cap/structure and be approved by the RICRMC and the RIDEM.

230. Compensation Options for Urban Coastal Greenway Requirements

Compensation is required whenever an applicant reduces an Urban Coastal Greenway from the **standard UCG width** for the applicable zone, or requests a variance under the UCG Regulations. In addition, the applicant must still meet the general UCG requirements regarding shoreline features, vegetation targets, public access, and minimum width (as listed in UCG Sections 150.3 to 150.8). Similarly, the 15% vegetation requirement and the 100% on-site stormwater management requirements for the development sites must be met (UCG Section 150.1), regardless of whether or not compensation options are utilized.

The compensation requirements are intended to accommodate a continuous Urban Coastal Greenway around the urban coastline of Narragansett Bay, as articulated in UCG Section 270. Compensation options for a reduced UCG width may include:

230.1 Urban Coastal Greenways Trust

In no case shall the Urban Coastal Greenway width be less than the minimum width defined within the applicable zone. When compensation is required, the applicant shall pay a fee into the Urban Coastal Greenways Trust. In order to calculate this fee, the RICRMC shall establish the representative waterfront value per acre for each Metro Bay Region municipality based upon professional appraisals of representative coastal parcels within each municipality. These values will be reassessed by the RICRMC every two years. The representative waterfront value will be multiplied by 20% to obtain the final dollar amount that shall be levied per square foot of UCG lost in a given municipality. (Note: It has been recommended by The Trust For Public Lands, Save The Bay, and others that 50-75% of the property value is more typical and appropriate, rather than the 20% value originally suggested by the EDC.)

For example: An applicant seeks a permit to construct a multi-use development on a site with 200 feet of coastal frontage. The site is within a Development Zone, and therefore the standard 100 foot Urban Coastal Greenway is applied in this case. Due to spatial constraints within the property, the applicant chooses the Compact UCG width of 50 feet. Assume that the representative waterfront value within the municipality of jurisdiction is \$1,000,000 per acre. The fee would therefore be calculated as follows:

Representative Waterfront Value	=	\$1,000,000/acre
Proposed Decrease in UCG Area	=	(200 feet * 50 feet)
	=	10,000 square feet
Step 1: (\$1,000,000/acre)*20%	=	\$200,000/acre of UCG value.
	=	\$4.59/square foot UCG lost.
Step 2: (\$4.59/sq. ft.)*(10,000 sq. ft.)	=	\$45,900.

Thus, the applicant would have to pay \$45,900 into the Urban Coastal Greenways Trust by choosing the Compact UCG width (50 ft.) on the proposed development.

- (b) Compensation fees paid to the [trust] shall be used only for the acquisition of property interests (fee simple, conservation easements, and other lesser interests) that serve the purposes of coastal habitat conservation or coastal habitat restoration within designated HPCA or HPRA (see Appendix 4) within the Metro Bay Region.. The CRMC shall prioritize the use of these funds based upon four factors:
1. Habitat quality ranking (where a ranking of “C4” or “R3” denotes highest conservation or restoration priority and “C1” or “R1” denotes lowest priority, as described in UCG Appendix 3);
 2. Location within the same municipality and proximity to the development site;
 3. High Priority Conservation Areas (HPCAs) within Area of Particular Concern Zones shall have priority over HPCAs within other Urban Coastal Greenway Zones; and
 4. Presence of a suitable HPCA. Restoration activities for High Priority Restoration Areas shall only be funded through this program if the CRMC determines that a suitable HPCA is not available. In the case where no suitable HPCA is available, habitat restoration of HPRA shall be prioritized in the same manner described above for HPCAs.

230.2 Other Possible Compensation Measures

At the discretion of RICRMC, an applicant may use one or a combination of the following measures to compensate for a reduction in the required UCG width. The compensation measures shall be equal or greater in value to the fee that would otherwise be contributed to the Urban Coastal Greenways Trust and must truly create new and additional public benefits.

- (a) Creation of **non-stormwater management wetlands** such as e.g., new salt marsh or other appropriate coastal wetland areas. The establishment of non-stormwater management wetlands shall be on-site or adjacent to the development wherever possible, or in other areas within the Metro Bay Region SAMP boundary, as deemed appropriate in consultation with the RICRMC. The RICRMC will endeavor to pre-identify areas for these non-stormwater management wetlands projects.
- (b) Restoration of an existing degraded wetland. The mitigation via restoration of degraded wetlands shall be on-site or adjacent to the development wherever possible, or in other areas within the Metro Bay SAMP boundary, as deemed appropriate in consultation with the RICRMC. The RICRMC will endeavor to pre-identify areas for these wetland restoration projects.
- (c) Increase opportunities for public recreational use of coastal waters on the development site. This could be accomplished through the construction of a public canoe or kayak rack

along the shoreline, accessible from the secondary public access pathway on the site. This option does not include construction of marinas.

- (d) Increase amenities for public access pathways within the UCG. This might include enhancement of the pathway through the placement of benches, lookout points, bicycle paths, fishing piers or platforms, fish cleaning facilities, or interpretive signage.
- (e) Purchase of land to establish UCG connections within the Metro Bay SAMP boundary. This may be accomplished through direct purchase of land or through conservation easements, with the intent of establishing continuous public access throughout the Metro Bay Region.
- (f) Extension of UCG width (beyond requirements) within Area Particular Concern Zone parcels.

240. Urban Coastal Greenway Management and Maintenance Requirements

240.1 The Owner of Record of a property with a Urban Coastal Greenway is responsible for maintaining the UCG in accordance with the operative RICRMC Assent, unless the UCG is transferred to another agent (i.e., the municipality, a land trust, etc.) with that agent's agreement to provide maintenance. The Council shall be the beneficiary of any Urban Coastal Greenway easements, and all easements shall be placed in the land evidence records of the municipality of jurisdiction.

240.2 All alterations within established Urban Coastal Greenways or alterations to natural vegetation (i.e., areas not presently maintained in a landscaped condition as of the effective date of this policy) within the Council's jurisdiction may be required to submit an Urban Coastal Greenway Management Plan for the Council's approval that is in compliance with the requirements of this section and the Council's most recent edition of the *Urban Coastal Greenway Design Manual* (in preparation). Urban Coastal Greenway Management Plans shall include a description of all proposed alterations and methods of avoiding problem areas such as the proper placement and maintenance of pathways. Applicants should consult the Council's most recent edition of *Urban Coastal Greenway Design Manual* (in preparation) when preparing an Urban Coastal Greenway Management Plan.

240.3 No encroachments shall be allowed within the UCG at any time.

240.4 Penalties. Failure to adhere to these policies will result in enforcement action including fines, liens, restoration, and/or voiding of the Council Assent.

250. Maintenance and Monitoring of Innovative Technologies

250.1 Prior to installation of any experimental stormwater treatment practice, a CRMC-approved monitoring plan is required that details methods, timing, attributes to be assessed, and acceptable values of monitored attributes.

250.2 The RICRMC encourages the use of effective, innovative techniques to achieve runoff reduction, pollutant abatement, and hazard mitigation. Accordingly, experimental technologies to achieve these goals may be implemented within the Urban Coastal Greenway, at the discretion of the Council.

250.3 If the required monitoring demonstrates that acceptable values of the monitored attributes are not achieved, retrofit or repair must commence immediately. Provisions shall be made on the development site and discussed within the approved monitoring plan to insure that a proven treatment practice can be accommodated and inserted on-site if an innovative technology fails.

250.4 It will be the responsibility of the property owner (or the appropriate surrogate, such as a homeowners' association) to ensure the monitoring of the effectiveness of these experimental technologies on a regular basis, as approved by the RICRMC. The property owner, or their agent, is required to report to the Council on the success or failure of any experimental efforts in an annual report to be delivered by December 31st of each year after the technology was installed for a period of five years for non-structural measures/technologies and for ten years for structural measures or technologies and more often following weather related events that would test the design limits of such measures/technologies (such as those events classified as hurricanes, and 50 and 100 year storm events).

260. Education

260.1 It is the policy of the RICRMC to encourage the education of landscape design and maintenance professionals as well as engineers, architects and the general public regarding the appropriate design, implementation, and maintenance of Urban Coastal Greenways.

260.2 This education may proceed through the use of demonstration projects to show the varied approaches toward Urban Coastal Greenway design, including ground shaping, Low Impact Development, the use of native plant communities and sustainable landscapes to create attractive habitat, and innovative pollution abatement technologies.

260.3 This education should also incorporate training for citizens, landscape design and maintenance professionals, engineers, and architects regarding the maintenance of Urban Coastal Greenways, as well as the proper use of fertilizers, pesticides, plant types, and surfacing materials.

260.4 The education program should include training programs that provide landowners, developers, local officials and contractors with the fundamentals and principles of how structural shoreline support can be designed and constructed to enhance the aesthetic and habitat values of a development, while providing the necessary protection from storm surge and/or flooding. Any such training program should also specify the proper methods for monitoring and maintaining structural shoreline support.

270. Findings of Fact Regarding Urban Coastal Greenways and Coastal Vegetative Buffers.

270.1 The establishment of Urban Coastal Greenways is based upon the RICRMC's legislative mandate under state and federal legislation to preserve, protect, develop, and, where possible, restore ecological systems.

270.2 **Vegetative buffer zones** have been applied as best management practices since the 1950s, to counteract erosion and nutrient inputs (due to agriculture and forestry) from adjacent land areas (Desbonnet et al., 1993). More recently, vegetated buffer zones have become common best management practices for the control and abatement of nonpoint source pollutants (contaminated runoff) (Desbonnet et al., 1993; NAS, 2002).

270.3 Urban parks have been used since the mid- 19th century to incorporate the ecological and aesthetic benefits of natural vegetation within urban space limitations, although the term "greenway" did not become popular until the 1970s (New England Greenway). In fact, the nation's first state greenway map was created in Rhode Island, in 1996 (RI Greenways Council, 2000).

270.4 Vegetative buffer zones and urban greenways provide multiple uses and multiple benefits to those areas where they are applied (Desbonnet et al., 1993; RI Greenspace & Greenways Plan, 1994). These vegetated zones provide more biologically important functions than uplands, in proportion to their area within a watershed (NAS, 2002). In the context of the Metro Bay Region, Urban Coastal Greenways can serve as vegetated buffer zones for an urbanized landscape. The multiple uses and benefits of these Urban Coastal Greenways include:

- (a) *Protection of Water Quality:* Urban Coastal Greenways along the perimeter of coastal water bodies can be effective in trapping sediments and pollutants, and absorbing nutrients (particularly nitrogen) from surface water runoff and groundwater flow. The effectiveness of Greenways as a best management practice for the control of nonpoint source runoff is dependent upon their ability to reduce the velocity of runoff flow to allow for the deposition of sediment, and the filtration and biological removal of nutrients within the vegetated area. Vegetated buffer zones often intercept groundwater and provide a carbon-rich environment that allows for microbial removal and transformation of soluble nutrients contained in groundwater. The increased travel time of groundwater through the Greenway also provides a mechanism for the filtering and mortality of bacteria and pathogens before they reach the receiving waters. In general, the effectiveness of any Greenway is related to its width, slope, soil type, and species of vegetation, as well as upland land use intensity. Effective vegetative buffer zones for nonpoint source pollution control, which trap sediment and remove nutrients entering them, range from 15 feet to 600 feet in width (Desbonnet et al., 1994).

Urban areas tend to input large quantities of nonpoint source pollution into coastal aquatic ecosystems. This is due in large part to the increase in impervious surfaces, and the resultant increase in surface (overland) water flow. This overland flow travels at

much greater speeds than surface flow across unpaved natural surfaces in a coastal ecosystem, leading to problems such as increased erosion and decreased control of nonpoint source pollutants. The establishment and protection of UCGs within these coastal urban areas will create a vegetated buffer between the sources that generate pollution and the coastal waterway.

- (b) *Protection of Urban Coastal Habitat:* Urban Coastal Greenways can provide crucial habitat for native plants and animals. Vegetation within a UCG provides cover from predation and weather, and habitat for nesting and feeding by resident and migratory species. Narragansett Bay comprises part of the Atlantic flyway for migratory songbirds (Olsen et al., 1980), as it contains coastal habitats critical to these species during their migrations (Parrish, 2000). Expanded Urban Greenways in the Metro Bay Region could significantly improve habitat quality for these species. In addition, some animals that use coastal vegetative buffer zones are now relatively uncommon, while others may be considered rare, threatened, or endangered. The relative paucity of vegetated corridors in coastal urban areas is a direct threat to the conservation of these species, and these native plants and animals are essential to the preservation of Rhode Island's valuable coastal ecosystems.

The ability of Greenways to function as wildlife habitat is dependent upon Greenway width and vegetation type. In general, a wider Greenway composed of a diverse native plant community will have greater value as wildlife habitat. Larger widths (≥ 300 feet) are typically needed for species that are more sensitive to disturbances. A diverse community of sustainable plant species and types (e.g., grasses, shrubs, and trees) can lead to improved habitat quality within the Greenway, and benefit native wildlife species throughout the region. The effectiveness of Greenways may be inhibited by the planting or encroachment of invasive and non-sustainable species (NAS, 2002). Greenways composed of sustainable vegetation allow for the natural functioning of the ecosystem and provide valuable habitat for resident and migrant species of wildlife.

- (c) *Protection of Scenic and Aesthetic Quality:* One of the primary goals of the Council, in accordance with RICRMP Section 330, is to protect and restore the scenic value of the coastal region in order to retain the visual diversity and unique visual character of the Rhode Island coast as seen by hundreds of thousands of residents and tourists each year (RICRMP Section 330). Urban Coastal Greenways enhance and protect Rhode Island's scenic and visual aesthetic resources along our urban coastlines. Urban Coastal Greenways also preserve the natural character of the urban shoreline, while mitigating the visual impacts of coastal development. Visual diversity provides both contrast and relief between the coastal and inland regions, leading to greater aesthetic value of the landscape. Finally, Greenways provide an aesthetically pleasing view from the rivers and Narragansett Bay, as well as from the shorelines across from the Greenway.
- (d) *Erosion Control:* Urban Coastal Greenways can provide a natural transition zone between open water, shoreline features, and upland development. Natural vegetation within a Greenway helps to stabilize the soil, reduces the velocity of surface water runoff,

reduces erosion of the soil by spreading runoff water over a wider area, and promotes absorption and infiltration.

- (e) *Flood Control*: Urban Coastal Greenways often occupy the flood plain and thus add to coastal flood protection in urban areas. Cities in the Metro Bay Region have experienced street and basement flooding during large storms, partially due to the loss of **coastal wetlands** that resulted from past filling of tidelands. Accordingly, the municipalities have recognized in their Hazard Mitigation Plans that (1) the flooding from these storms can cause the flow of contaminated runoff into Narragansett Bay and its tributaries and (2) better flood protection can be achieved through the management of open space in the floodplain.
- (f) *Protection of Historic and Archaeological Resources*: Many sites of archaeological importance are contained within the 200-foot jurisdiction of the RICRMC. Urban Coastal Greenways protect areas of cultural and historic importance (such as archaeological sites) by helping prevent intrusion and/or alteration while protecting the sites' natural surroundings. Much of this region was the hub of a thriving port during the period of the 18th, 19th, and early 20th centuries. Extensive shoreline areas and coastal resources have been heavily altered, former tidal lands have been filled, and river courses have been relocated. The once natural shoreline along most of this area has now been changed to revetments and bulkheads, although some high quality habitat areas remain.
- (g) *Public Access*: Urban Coastal Greenways are a means of maximizing usable open space to provide opportunities for passive recreation and community gathering, and can be designed to ensure the accessibility of the shoreline for all Rhode Islanders. An open connection to the coast is especially important in the Metro Bay Region due to the limited recreational opportunities along the shoreline in this highly urbanized area. Furthermore, public access provides one of relatively few opportunities for residents of these heavily developed areas to experience and enjoy the outdoors in their natural state. The recreational opportunities in Urban Coastal Greenways include walking trails and bike paths (RI Greenspace & Greenways Plan, 1994). Greenways also address equitability concerns in urban areas, as many residents in the Metro Bay Region are often unable to travel outside of the city to the shorelines of southern Rhode Island.
- (h) *Economic Value*: Greenways provide many economic benefits (NPS, 1995), including increased tourism opportunities. Programs such as the East Coast Greenway, whose goal is to connect the entire Atlantic coast of the United States by a greenway that includes trails for biking and walking (East Coast Greenways, 2005), benefit the tourism industry in an accessible, environmentally friendly manner. Furthermore, the economic value of developed properties abutting forests and vegetative buffers is increased due to the improved water quality and aesthetics of these green spaces (Palone & Todd, 1998; Schueler, 1995).

270.5 The goals of the CRMC with respect to the establishment of Urban Coastal Greenways are in accordance with numerous Rhode Island state agreements and municipal visions (e.g., Pawtucket Hazard Mitigation Plan, East Providence Special Waterfront Development District

Plan, Rhode Island Greenspace and Greenways Plan, and John H. Chafee Blackstone River Valley National Heritage Corridor). The Metro Bay Region municipalities have also acknowledged the benefits of open space with regard to flood protection, minimization of development in floodprone areas, habitat, and public recreation (East Providence Hazard Mitigation Plan, 2002; Pawtucket Hazard Mitigation Plan, 1998; Providence Hazard Mitigation Plan, 2000). The successful implementation and management of a continuous Urban Coastal Greenway along the urban coast of Narragansett Bay will preserve Rhode Island's natural, historic, recreational, and cultural values, and will continue Rhode Island's role as an innovator in coastal management.

270.6 Need for an Alternative Urban Buffer Policy

Sections 140 and 150 of the RICRMP establish setbacks and coastal buffers that apply to all Rhode Island shorelines. However, as described in UCG Section 120 and these findings, the RICRMC recognized the need for a more flexible approach in its coastal vegetative buffer requirements for urban development. These new urban buffer regulations mitigate for factors that result from the large-scale redevelopment that is anticipated along the Metro Bay Region shoreline, but also allow for economic development. These factors include, but are not limited to: the degradation of Narragansett Bay and its tributaries by stormwater runoff; the potential loss of unique coastal habitats, and the absence of public access along and to the Metro Bay Region shoreline.

280. Definitions

280.1 The “**Capital Center District**” area, as established in the City of Providence Code of Ordinances, encompasses the area bounded by I-95, Smith Street, Francis Street Gaspee Street, Canal Street, Steeple Street, Exchange Terrace, and West Exchange Terrace.

280.2 A “**Shoreline** or **Coastal Feature**” is a natural or artificially constructed physical feature of the shoreline, as defined in Section 210 of the Rhode Island Coastal Resources Management Program (RICRMP).

280.3 A “**Coastal Buffer Zone**” is a regulatory feature that requires a naturally vegetated area that must be retained in a natural, undisturbed condition, or properly managed in accordance with the standards contained in Section 150 of the RICRMP. In cases where native vegetation does not exist within a buffer zone, the Council may require restoration efforts which include, but are not limited to, replanting the Coastal Buffer Zone with native plant species.

280.7 “**Coastal Wetlands**” include salt marshes and freshwater or brackish wetlands contiguous to salt marshes or physiographical features. Areas of open water within coastal wetlands are considered a part of the wetland. In addition, coastal wetlands also include freshwater and/or brackish wetlands that are directly associated with non-tidal coastal ponds and freshwater or brackish wetlands that occur on a barrier beach or are separated from tidal waters by a barrier beach.

280.8 “**Compensation**” is required when an applicant wishes to reduce the width of an Urban Coastal Greenway below the standard width for the applicable UCG Zone. Any reduction in UCG width below that standard requires compensation for the lost Urban Coastal Greenway area, as described in UCG Section 230.

280.9 A “**Construction Setback**” establishes a minimum distance between a shoreline feature, buffer zone, or Urban Coastal Greenway and construction activities.

280.10 The “**Council**”, “**CRMC**”, and “**RICRMC**” refer to the Rhode Island Coastal Resources Management Council.

280.11 For the purposes of the Urban Coastal Greenway requirements, “**Development**” refers to the construction of new commercial, industrial, or residential structures, as defined in RICRMP Section 300.3. This also includes structures accommodating a mix of uses within a single development, building, or tract, as allowed by a municipality. Other activities subject to RICRMC jurisdiction may be contained within the RICRMP definition of “development.”

280.12 “**High Priority Conservation Areas**” (HPCAs) are those areas identified by the RICRMC as parcels or areas within the Metro Bay Region that should be preserved for their habitat value.

280.13 “**High Priority Restoration Areas**” (HPRAs) are those areas identified by the RICRMC as parcels within the Metro Bay Region that should be restored for their habitat value.

280.14 “**Mitigation**”, as described in UCG Section 200, is required whenever an applicant chooses not to include public access within a development or redevelopment project that triggers the Urban Coastal Greenway Regulations. Mitigation is not equivalent to “compensation”, and therefore it is possible that both mitigation and compensation could be required within a single project.

280.15 The “**Inland Edge**” is that boundary of a coastal feature, Urban Coastal Greenway, or buffer zone that directly abuts the upland area.

280.16 “**Low Impact Development**” (LID) refers to planning and engineering techniques for stormwater management that emphasize conservation and the use of vegetative features to meet water quality goals (see UCG Section 150.6(a) for specific LID techniques).

280.17 For the purposes of the Urban Coastal Greenways policy, a “**Managed Landscape**” shall be considered a vegetated area within a buffer zone or Urban Coastal Greenway where limited landscaping practices are allowed. These practices may include the removal of non-native invasive plants, restorative plantings of native and sustainable plant species and the pruning, trimming, and selective cutting of vegetation designed to manage habitat, maintain scenic view-sheds, and preserve shoreline access. Managed landscapes should also provide for infiltration of stormwater and the minimization of erosion. Activities *not allowed* in managed landscapes include:

- (a) clear-cutting of vegetation (except as part of an RICRMC-approved habitat restoration or public access plan),
- (b) the establishment of lawns (except in areas designated for public access and recreation),
- (c) the application of fertilizers, herbicides and pesticides (except as specifically allowed by an RICRMC-approved managed landscape plan),
- (d) and any other activities which the RICRMC determines are incompatible with the functions and values of buffer zones and established Urban Coastal Greenways.

280.18 The “**Metro Bay Region**”, is the northern region of Narragansett Bay, encompassed within the boundaries of the Metro Bay Special Area Management Plan (SAMP). The SAMP boundary stretches north from the southern tip of Pawtuxet Neck in Cranston to Main Street in Pawtucket, then around the bay to the East Providence Water Pollution Control Facility at Crest Avenue. The boundary also includes the Woonasquatucket River tidal portion to Atwells Avenue and the Moshassuck River to Orms Street. The municipalities contained within the Metro Bay Region are Pawtucket, East Providence, Providence, and Cranston.

280.19 “**Multi-Residential Development**” refers to any residential development designed or used to house three or more families.

280.20 “**Native, Non-Invasive Vegetation**” refers to those species that grew naturally (outside of cultivation) in this region prior to European colonization (URI Cooperative Extension, 1999) and do not grow so rapidly that they become difficult to maintain. Native species are well acclimated for local climatic and soil conditions, and often require less frequent replacement and maintenance than non-native species. Native vegetation also provides habitat for wildlife species that depend upon native plant communities for all or part of their life cycle. An assemblage of native non-invasive plants is referred to as a “**Native Plant Community**”.

280.21 “**Non-stormwater management wetlands**” are those wetlands that provide the recognized functions and values of natural wetlands systems, rather than wetlands designed specifically for a stormwater treatment function. These natural wetlands functions and values include:

- (a) wildlife and food web support;
- (b) wildlife habitat;
- (c) water quality enhancement;
- (d) recreation;
- (e) aesthetics; and
- (f) shoreline anchoring.

280.22 A “**Primary Public Access Path**” provides linear public access along the length of the shoreline, as part of an Urban Coastal Greenway.

280.23 “**Public Roads**” must be existing, usable public thoroughways. This does not include streets that have been planned, but not yet constructed.

280.24 “**Redevelopment**” refers to any alteration or reconstruction of existing commercial, industrial, or residential structures.

280.25 “**RICRMP**” refers to the Rhode Island Coastal Resources Management Program (or “Redbook”), as amended.

280.26 A “**Secondary Public Access Path**” provides arterial, or perpendicular, public access to a coastal feature, as part of an Urban Coastal Greenway.

280.27 The “**Shoreward Edge**” is that boundary of a coastal feature, Coastal Buffer Zone, Urban Coastal Greenway Zone, or development site that faces away from the upland area.

280.28 The “**Standard Urban Coastal Greenway Width**” is the maximum Urban Coastal Greenway width required for a project. The standard width varies by UCG Zone.

280.30 “**Sustainable Vegetation**” refers to non-invasive native plants, as described above, as well as other (non-native) non-invasive plants that require low inputs of pesticides, fertilizers, water, and maintenance. Refer to the *Urban Coastal Greenway Design Manual* for a list of appropriate plantings. An assemblage of sustainable plants is referred to as a “**Sustainable Landscape**”.

280.31 An “**Urban Coastal Greenway**” is a land area within the Metro Bay Region that is adjacent to the coastal feature on a development site, and is established and managed to protect aquatic, wetland, shoreline, and terrestrial environments from human-induced disturbances and coastal flood hazards, while allowing for coastal economic development.

280.32 The “**Urban Coastal Greenway Design Manual**” is a reference guide that provides information regarding Urban Coastal Greenway design options and resources for additional information.

280.33 An “**Urban Coastal Greenway Management Plan**” is a CRMC-approved document that specifies the property owner’s required best management practices for Urban Coastal Greenway maintenance and management.

280.34 A “**Vegetated Buffer Zone**” is a land area that provides a vegetated transition zone composed of native plant communities and/or sustainable landscapes between a waterway and developed land. Native plant communities are often preferred in areas identified for wildlife habitat while sustainable landscapes often support recreation and water quality treatment in areas where wildlife habitat is not a priority. Site development strategies shall be discussed with the CRMC prior to site plan development.

280.35 “**Water Quality Volume**” refers to the quantity of water that must be captured for water quality treatment by a stormwater management system. The specific requirements for water quality volume are stated in the Rhode Island Stormwater Quality Manual.

290. References

- Australian Capital Territory Department of Urban Services. 2000? Chapter 22: Soft Landscape Designs, *In* Design Standards for Urban Infrastructure. 21 pp.
- Center for Watershed Protection and Maryland Department of the Environment. 2000. 2000 Maryland Stormwater Design Manual. Maryland Department of the Environment, Baltimore. (re: maintenance guidelines)
- City of San Antonio. 2002. River Improvement Overlay (§35-338). San Antonio, TX. 39 pp. (re: public access policy, stormwater detention structure design)
http://www.landuse.law.pace.edu/landuse/documents/laws/reg6/Reg6_TX_SanAntonio_River%20Improvement.pdf
- City of Windsor. Official Plan, Volume 1: Urban Design. Windsor, Ontario. 31 pp. (re: emergency services access and framing elements policies)
- East Coast Greenway. <http://www.greenway.org> Website accessed 2/7/05.
- Georgia Forestry Commission. 2001. Georgia Model Urban Forest Book. 78 pp.
- Hinman, C. 2005. Low Impact Development Technical Guidance Manual for Puget Sound. Puget Sound Action Team Publication No. PSAT 05-03. Olympia, WA. 247 pp. (Available online at http://www.psat.wa.gov/Publications/LID_tech_manual05/lid_index.htm)
- National Academy of Science. 2002. Riparian Areas: Functions and Strategies for Management. 436 pp.
- National Park Service. 1995. Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors. 4th ed. (<http://www.nps.gov/pwro/rtca/econindx.htm>) Website accessed 2/7/05.
- New England Greenway. <http://www.umass.edu/greenway/Greenways/2GR-sig.html> Website accessed 2/7/05.
- Olsen, S., D.D. Robadue, Jr., and V. Lee. 1980. An Interpretive Atlas of Narragansett Bay. Coastal Resources Center University of Rhode Island. Marine Bulletin 40.
- Palone, R.S. and A.H. Todd (eds). 1997. Chesapeake Bay Riparian Handbook: A Guide for Establishing and Maintaining Riparian Forest Buffers. USDA Forest Service. NA-TP-02-97. Radnor, PA.
- Parrish, J.D. 2000. Behavioral, energetic, and conservation implications of foraging plasticity during migration. *Studies in Avian Biology*. 20(1): 53-70.

Rhode Island Greenways Council. Talk presented at the American Planning Association Meeting, April, 2000. (<http://www.planning.ri.gov/greenways/greencouncil/map1.pdf>) Website accessed 2/7/05.

Sarkissian Associates Planners. 2000. Australian Capital Territory Crime Prevention and Urban Design Resource Manual. 58 pp. (re: urban crime prevention policies)

Schueler, T.R. 1995. Site Planning for Urban Stream Protection. Center for Watershed Protection. Metropolitan Washington Council of Governments. Silver Spring, MD. 222 pp.

Superfund/Brownfield Research Institute. 2003. Brownfields Redevelopment. A Guidebook for Local Governments and Communities. 2nd edition. International City/County Management Association. 450 pp.

University of Rhode Island Cooperative Extension. 1999. Sustainable Trees and Shrubs, 3rd ed. URI, Kingston, RI.

Wenger, S. and L. Fowler. 2000. Protecting Stream and River Corridors: Creating Effective Local Riparian Buffer Ordinances. Carl Vinson Institute of Government, University of Georgia. 68 pp.

Zimble, R. 2002?. Driving Urban Environments: Smart Growth Parking Best Practices. Office of Smart Growth, State of Maryland. 43 pp. (re: LID policies)

300. Appendices

Appendix 1. RICRMP Section 150 Table 2a. Coastal Buffer Zone Designations for the Residential Development Zone.

Lot Size (square feet)	Required buffer width (feet) for Development in Water Types 3, 4, 5, and 6.	Required Construction Setback (feet)
<10,000	15	25
10,000 – 20,000	25	25
20,001 – 40,000	50	25
40,001 – 60,000	75	25
60,001 – 80,000	100	25
80,001 – 200,000	125	25
Greater than 200,000	150	25

Appendix 2. Standard Coastal Buffer Width Requirements for Development within the Metro Bay SAMP Boundary.

Lot Size (square feet)	Required buffer width (feet)
≤20,000	25
20,001 – 40,000	50
40,001 – 60,000	75
60,001 – 80,000	100
Greater than 80,000	150

Appendix 3. Habitat Quality Ranking Criteria for High Priority Conservation and Restoration Areas.

One of the phases of the Metro Bay SAMP development process was to evaluate and classify open land within the SAMP boundary that might be considered for future development or redevelopment. Assessments were made without regard to property boundaries; instead Dr. Mitchell looked at continuous blocks of habitat which may have contained more than one type of habitat. For example, one block might include a forest, a freshwater shrub swamp, and fringing salt marsh. The value of land as a biological community was the first consideration. Though many criteria could have been used to rank parcels of land, this analysis focused on the maturity and composition of the plant community as an index to habitat quality.

The following flowchart illustrates the ranking process for habitat quality. Please note that least valuable habitat has a rank of “1”, and more valuable habitats are indicated by successively higher numbers.

HABITAT VALUE	POOR $\xrightarrow{\hspace{10em}}$ GOOD \rightarrow						
VEGETATION CHARACTERISTICS	BARREN	<	ALL EXOTIC VEGETATION	<	MIXTURE OF EXOTIC AND NATIVE VEGETATION	<	MATURE NATIVE VEGETATION
RANKING	1	<	2	<	3	<	4

Supplementary information was also considered: 1) the habitat’s use by wildlife as observed during site visits or as previously noted by other biologists or naturalists, 2) the use by state or federally listed species (resident or migratory), and 3) the geographic relationship (linkage) of the parcels to other habitat, or recognized conservation and recreational lands as identified in the State Conservation and Recreational Openspace GIS data layer (Scorp90.shp). If the existing habitat quality on a parcel of land was poor, its potential to be restored and its importance if it were restored were considered. Good candidate restoration sites would include barren lots in the center of an otherwise high quality habitat corridor, sites that buffer important habitat, or sites that could eventually serve to lengthen a habitat corridor. Most restoration sites, however, contained the lowest quality habitat and were therefore the least important to conserve. In some cases isolated parcels were identified that were vegetated with exotic species or isolated from other sites. These sites, while ranking low in habitat quality, were important to residential communities for scenic or recreational purposes. A separate ranking category was created for these sites.

Habitat was evaluated and ranked at 237sites. Detailed field data were collected for 53 sites regarding species composition, dominant vegetation in the upper and understory, and estimated basal diameter of largest trees and/or dominant trees. An additional 63 sites were classified through “windshield surveys” that assessed species composition and maturity. Using 1997 and 2002 aerial orthophotos obtained from RIGIS, we classified habitat in the remaining 121sites by photo-interpretation based on the visual signatures established during site visits. Based on our findings we developed the following ranking system for undeveloped lands in the Metro Bay SAMP area:

Conservation Zone

- Sites with good habitat quality earmarked for conservation
- In most cases native species are dominant

Rank:

1. Vegetated with shrubby or small trees.
2. Maturing woods or woody fringe with most trees ≤ 1 ft diameter.
3. Mature system: woods with many trees > 1 ft diameter, or emergent wetlands (salt marsh or fresh).
4. Exceptional example of mature ecosystem

Restoration Zones

- Potential site for restoration
- In most vegetated areas exotic species are dominant

Rank:

1. Paved or barren – no vegetation
2. Partially vegetated with grass or shrubs
3. Completely, or almost completely, vegetated with grass, shrubs, or trees

Scenic or Recreation Zone

- Significant unprotected lands
- Native or exotic vegetation

Rank:

1. Mowed grass, may have shrubs, beside highway – no safe access
2. Vegetated (green) patch in city neighborhood
3. Vital scenic or recreational value – contributes to character or identity of neighborhood

Linkage

- Habitat and greenway linkage – examining connectivity of wildlife habitat corridors or scenic/recreation areas

Rank:

0. Isolated land
 1. Land within 100 ft of other identified links or the waterfront
 2. Land that meets at least one of the following criteria:
 - a. A “central link:” identified links separated by no more than 100 ft from two other links, or one link and the waterfront, or a link that has a perimeter more than $\frac{1}{2}$ way surrounded by land identified as a link
 - b. A link within 100 ft of recognized conservation or recreational land (SCORP lands, private preserves, land trust holdings), a link within 100 ft.

of adjacent links that connect it to recognized conservation or recreational land

3. A central link (defined in 2a) that forms part of a habitat corridor or potential greenway containing recognized conservation or recreational lands

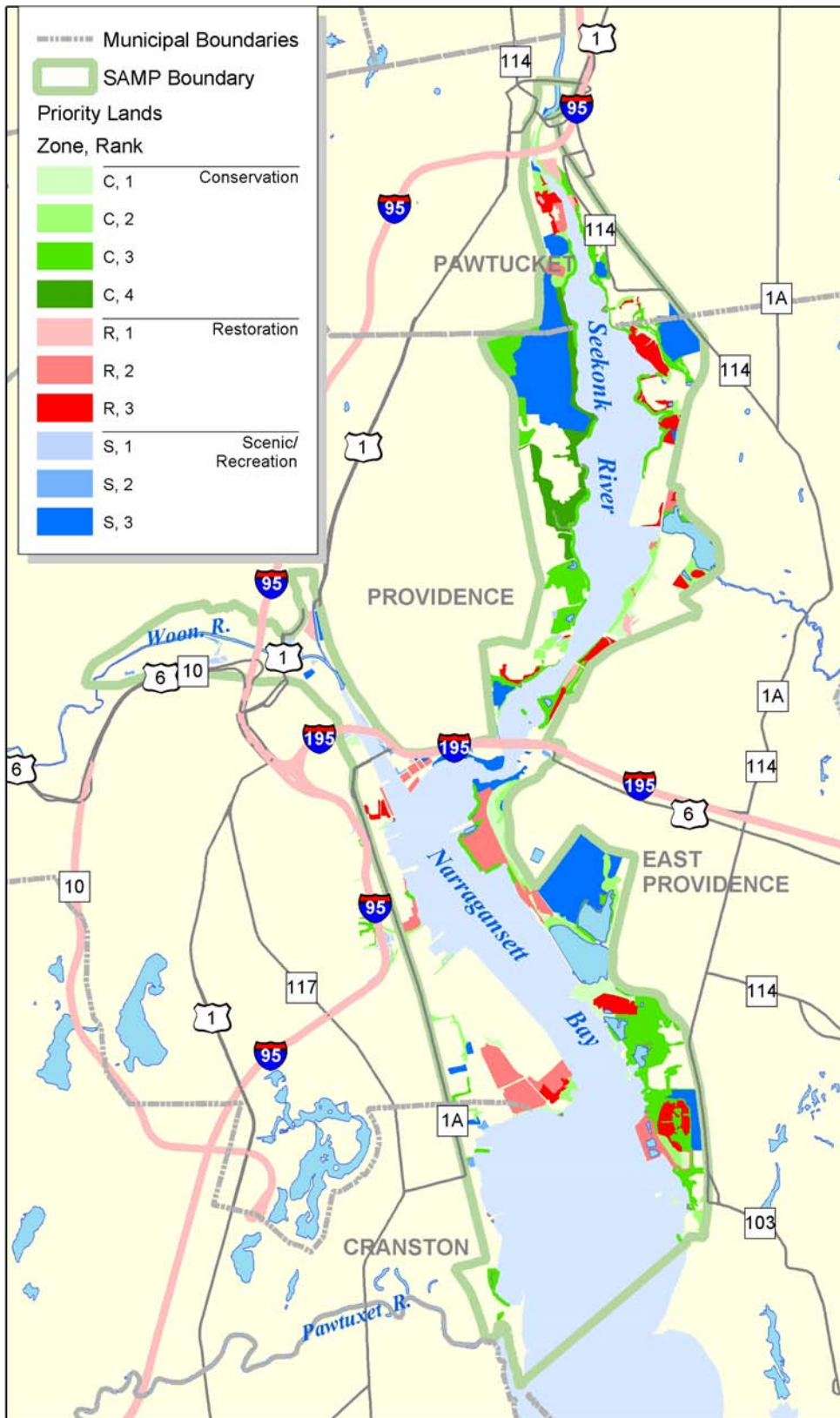
Evaluation

- Type of analysis at each site

Rank:

1. Photo-interpretation (2003 and 1997 RIGIS orthophotos)
2. “Windshield survey” looking from outside in (1 and 2)
3. Site visit (1, 2, and 3)

Appendix 4. Map of High Priority Conservation Areas (HPCAs) and High Priority Restoration Areas (HPRAs) in the Metro Bay Region.



Priority Habitat Lands Zones prepared by Numi Mitchell, Ph.D. The Conservation Agency 67 Howland, Avenue Jamestown, RI 02835. 401.423.0866

Map prepared by The Providence Plan

Additional layers provided by the Rhode Island Geographic Information System (RIGIS) and the Narragansett Bay Estuary Program.