

## Town of Fort Myers Beach Nourishment Vegetation Management Plan (FMBVMP)

In 2006 the Marine Resources Task Force (MRTF) began development of a program designed to encourage the planting and maintenance of dunes and dune vegetation on Fort Myers Beach called "Beachscape". The intent of this program is to restore and manage dunes where they do not currently exist or increase the quality of existing dunes through a voluntary program. The tenants and general concepts of the Beachscape program have been incorporated into this plan. This plan is designed to serve as the Beach Nourishment Vegetation Plan and will give property owners flexibility in managing their beach nourishment plantings and will be hereafter referred to as the "Fort Myers Beach Vegetation Management Plan (FMBVMP)". To eliminate confusion between the Beachscape plantings described in the MRTF voluntary planting plan and the plantings described in this plan, beach nourishment plantings will be hereafter referred to as Managed Beach Zones. Ultimately, this plan will serve as assurance to property owners that they will be able to manage their plantings under certain prescribed criteria outlined in this plan. This will encourage property owners to partner with the Town and the County on the Estero Island Beach Restoration Project (EIBRP). One of the overarching goals of this plan is to implement certain goals and objectives of the Town of Fort Myers Beach Comprehensive Plan and Land Development Code (LDC) through the EIBRP. This document, when approved by Town Council and the County Commission, will serve as the vegetation plan as described in the Interlocal Agreement for Estero Island Beach Restoration. The intent of this management plan is to provide reasonable assurance to the Florida Department of Environmental Protection (DEP) and to obtain delegation from the DEP for permitting of dune planting management and minor structures such as temporary rope and bollard systems. This management plan also will serve to:

- Effect the conservation, preservation, and protection of the beach-dune system and cause no interference with marine turtles or their nesting sites or any other listed species,
- Standardize beach nourishment Managed Beach Zones to increase likelihood of success,
- Educate property owners about the benefits of Managed Beach Zones,
- Encourage a stewardship approach to the beach.

This plan will benefit the citizens and businesses of the Town of Fort Myers Beach by increasing aesthetic quality of the beach and serving as a first line of defense for protection from storms. The Town will partner with the County to take the lead in the program by developing beach plantings at all public beach access areas as well as Town and County properties such as Bowditch Point and Newton Park. Participation in this program is contingent property owner's participation in the EIBRP and their subsequent agreement to the Storm Damage Reduction Easement. Upon enrolment in the program, the Town will work with property owners to develop the parameters for each Managed Beach Zone planting area. These parameters will be outlined in a Memorandum of Agreement (MOA) between each property owner and the Town. The MOA will outline the responsibilities of the Town and the property owner for each planting and will effect

compliance of the program parameters to provide reasonable assurance that the Town, County, and State's resources are properly allocated. The MOA will also serve as a mechanism to allow the Town to act as an agent for property owners to acquire any necessary Coastal Construction Control Line permits from the DEP under the tenets of this plan. This plan must also be viewed as a living document as situations may arise in the future which is not foreseen by this plan. Any modifications to this plan or unique situations will be considered with respect to the intent of this plan, the Town Comprehensive Plan and LDC as well as applicable state statutes and rules.

Managed Beach Zone plantings, as outlined in this management plan, may be cost shared through funding of the EIBRP including local, state, and federal sources. The criteria outlined in this plan ensure that government funds used for this program are utilized for the overall benefit of Town and County citizens, businesses, and property owners. While this management plan is intended to provide overarching goals and criteria for Managed Beach Zone plantings through the EIBRP, it is not the only mechanism to achieve the vision of increasing dune vegetation on the beach. *Individual property owners will retain the ability to voluntarily plant native dune vegetation without the assistance or criteria of the Managed Beach Zone program.* The Town encourages all native and appropriate dune vegetation on the beach that any property owner wishes to pursue on their own. Property owners who develop or have developed their dune plantings without the FMBVMP should be recognized for their pledge to take a personal interest in the stewardship of Fort Myers Beach. Property owners who wish to fund their own beach plantings may choose to participate in the voluntary Beachscape program so that they may affect control of their plantings through Town trimming and dune lowering permits. However, it should be noted that if a property owner wishes to develop new dune plantings outside of the FMBVMP Managed Beach Zone program, they would likely have to pursue their own permits from the Florida Department of Environmental Protection and they would likely not have the same ability to control their vegetation as outlined in this plan.

This Beach Nourishment Vegetation Management Plan (FMBVMP) will also serve as an incentive to property owners to enter into the Storm Damage Reduction (SDR) easement for the Estero Island Beach Restoration Project. The incentives in this plan for property owners include:

- An ability of property owners who agree to the SDR easement to control and limit the spread of dune vegetation thorough the mechanisms in this plan.
- Increased protection from storm surge and erosion.
- Significantly wider and more stable beach.
- Potentially increased property value.
- Increase in property aesthetics.
- Potential increase in privacy.

In the event that all necessary easements are not obtained for the EIBRP and those properties are not planted with vegetation under the auspices of this plan, then gaps between Managed Beach Zones may be the result. While gaps in the vegetation line are undesirable for the purposes of providing storm protection as a whole for the Town, the overall addition of vegetation will still provide increased protection for the Town than

currently exists. The Town will encourage (but not require) any property owners who do not benefit from vegetation planting as a result of the EIBRP to voluntarily consider pursuing their own plantings. The MRTF Beachscape Program would be the best place for property owners to turn.

## **Background**

The Town of Fort Myers Beach is located completely on a barrier island on the southwest coast of Florida in Lee County. The Island is approximately seven miles in length and 1,466 acres in size. The island is subject to overtopping by major storms and coastal processes such as Aeolian erosion and deposition, salt spray and gradual and catastrophic littoral wave action exercise a strong influence over the vegetation and morphology seaward of the existing line of development. These coastal processes produce environmental stressors that natural beach floral and faunal communities, such as dune, coastal strand, coastal grassland, and maritime hammock, are well adapted to. Dune plant communities stabilize beaches over time and their growth habitats function to trap sand blown by wind and moved by waves from the surf zone to the dune area. This sand trapping leads to increases in dune height and beach width over time. Depending on local winds, wave energy, and sand volume, dunes may reach substantial heights. However, the native dunes of Fort Myers Beach prior to development likely did not exceed four to six feet in height on average unlike other areas of the state such as Cape San Blas which have much greater wave energy, local winds, and sand availability. Prior to the development of Fort Myers Beach, it is likely that the beach system was similar in appearance and function to modern day reference sites such as Cayo Costa State Park and Lovers Key State Recreation Area. Development of the beach has led to a loss of dune and coastal strand plant communities. Placement of a line of development atop the former dune profile, and removal of much of the former vegetation, has also led to increased potential for storm damage from flooding and wave action.

The beach is the basis of tourism on Fort Myers Beach and therefore its long-term stability, integrity, and aesthetic qualities are critical to the economy of the island. Tourists from around the world visit Fort Myers Beach to enjoy the sub-tropical weather and the beach. Aesthetic values vary from person to person based upon personal and cultural values. While one beachgoer may enjoy a flat, sterile beach with no vegetation, the next may prefer an eco-tour type experience with waving sea oats and dune sunflower framed by sea grapes and cabbage palms. While this value system may vary between visitors, all beachgoers certainly share the same desire for broad sandy beaches. The natural sand trapping function of dune vegetation typically results in a more stable beach and higher quality of sand which all visitors will enjoy. Since dunes also act as a moderate level of storm protection, the prudent property owner will also appreciate their presence.

Beach vegetation and dunes also serve as a critical component to maintaining beach stability and serving as a source of sand to rebuild the beach after a storm event. Fort Myers Beach is a beach has been subject to heavy development, much of which took place before state and local planners placed tighter restrictions on coastal construction setbacks. As a result, many valuable properties and infrastructure are placed in

locations where they would likely be not permissible today. Property and infrastructure proximity to the coast and storm surge effects (such as storm surge) on those properties place millions of dollars of private and public property in jeopardy of loss. Many studies have proven that wider, more natural beaches provide a natural buffer to storm events and thus result in increased property protection. The Florida Department of Environmental Protection has conducted periodic surveys of beach and coastline stability on a local and statewide basis, since 1989. The 2008 DEP survey of Critically Eroded Beaches in Florida lists five miles of Fort Myers Beach as critically eroded. The DEP defines critical erosion as *“Critically eroded area is a segment of the shoreline where natural processes or human activity have caused or contributed to erosion and recession of the beach or dune system to such a degree that upland development, recreational interests, wildlife habitat, or important cultural resources are threatened or lost. Critically eroded areas may also include peripheral segments or gaps between identified critically eroded areas which, although they may be stable or slightly erosional now, their inclusion is necessary for continuity of management of the coastal system or for the design integrity of adjacent beach management projects.”*

This critical rate of erosion, combined with coastal armoring on some areas of the island, has required the planning and implementation of periodic beach nourishment projects over the past 30 years. These beach nourishment projects have the two main purposes of providing storm protection and in maintaining a suitable sandy beach for recreation. Advances in the understanding of coastal process over the past several decades has led to changes in the way that beach nourishment or restoration projects are planned and implemented. Standard coastal management practices in Florida and throughout the southeast prescribe beach plantings as a means to stabilize the beach and reduce the need for future nourishments. Recognizing the function that dune vegetation serves in maintaining and restoring beach systems, Lee County changed its comprehensive plan in the early 2000's to reflect the importance of dune vegetation in protecting tax payer investment in beach nourishment. The Town of Fort Myers Beach comprehensive plan also recognizes this fact as outlined in following sections. On a national basis, local, state, and federal governments have linked beach plantings as a critical component to beach nourishment in many projects. A small investment in beach plantings over the short term results in large cost savings over the long term by extending the life span and effectiveness of the project. Sanibel, Captiva, Bonita Beach, Gasparilla Island, Lovers Key, and Naples all serve as regional examples of beach nourishment that combines beach plantings as standard procedure.

### **Legal Constraints and Opportunities**

This plan may require a finding of consistency with the Town's Comprehensive Plan and Land Development Code and will require approval by the Town Council. As this plan describes below, certain modifications may need to be made to the LDC in the long term to obtain consistency. The final determination of consistency from the Town of Fort Myers Beach will be determined by the Local Planning Agency and/or Town Council. Consistency determinations with State rules and Statues would be determined by the DEP. Consistency with the Lee County Comprehensive Plan will be determined by the Lee County Board of County Commissioners.

In order to fully integrate the implementation of this management program will require the cooperation of several agencies including; the Town of Fort Myers Beach (Town), Lee County, the Florida Department of Environmental Protection (DEP), and the Florida Fish & Wildlife Conservation Commission (FWC). Under the Beach and Shore Preservation Act, DEP jurisdiction extends to any project which takes place seaward of the 1991 Coastal Construction Control Line. The DEP permitting process may range from a DEP field permit for minor structures that are consistent with the Town's Comprehensive Plan and Land Development Code to administrative permits approved by DEP per the provisions of Ch. 161.053, Florida Statutes.

Town of Fort Myers Beach Comprehensive Plan and Land Development Code

The following sections from the adopted Town of Fort Myers Beach Comprehensive Plan and Land Development Code (LDC) provide support and guidance for this program.

- **OBJECTIVE 5-D BEACHES AND DUNES – Conserve and enhance the shoreline of Estero Island by increasing the amount of dunes, renourishing beaches to counter natural erosion, and reducing negative man-made impacts on beaches and dunes.**
- POLICY 5-D-1 ii. Sand dunes should be protected and recreated wherever they have been removed. Native dune plants should be protected and non-native exotics removed. Dune walkovers should be constructed where they do not exist and existing structures should be maintained.
- **OBJECTIVE 6-E DUNES AND BEACHES – Protect and improve dunes and beaches as recreation areas, valuable habitat, protection from storms, and areas of high scenic and aesthetic value. The effect of the town's efforts may be a noticeable transition from today's manicured and compacted beach towards a naturally appearing and functioning beach. This transition will be accomplished through education, regulation, and assistance in physical restoration activities.**
- POLICY 6-E-3 The town will implement the following measures to promote the restoration of beach and dune systems:
  - Initiate a program to recreate a dune line and plant appropriate vegetation such as sea oats wherever sand dunes have been destroyed.
  - Require the use of indigenous plant species for public and private dune restoration or renourishment projects.

- **LDC Section 14-8**
  - In areas where the beach has experienced erosion, on public land or with the consent of the owner, the town will establish a dune system consisting of sea oat plantings, a minimum of 10 feet wide, to be planted adjacent to the existing upland vegetation line, and to be planted at existing elevations.
  - In areas that have not experienced erosion, the town will encourage the establishment of a dune system but will not require same.

Florida Department of Environmental Protection Statues

The DEP manages the Coastal Construction Control Line (CCCL) Program under the authority of Chapter 161 Florida Statutes, the “Beach and Shore Preservation Act.” The CCCL program outlines the requirements for construction waterward of the CCCL in Florida. There are three sections of note in Chapter 161 which would appear to lend support to greater property owners control over their Managed Beach Zone and allow limited Town autonomy with the support and guidance of the DEP with regulation of a Managed Beach Zone program.

- Ch. 161.0531 (1) F.S. “At the request of the property owner, the department is authorized to enter into a development agreement with such property owner, or modify or extend an existing development agreement, for activities seaward of a coastal construction control line. All such agreements must further the conservation, preservation, and protection of the beach-dune system and cause no measurable interference with marine turtles or their nesting sites.” This section offers a possibility of utilizing the development agreement format for each property as a substitute for the MOA which is referenced in this plan, particularly, with permission of the property owner; the Town could act as an agent.
- Ch. 161.242 (2) F.S. “It is unlawful for any purpose to cut, harvest, remove, or eradicate any of the grass commonly known as sea oats or *Uniola paniculata* and *Coccolobis uvifera* commonly known as sea grapes from any public land or from any private land without consent of the owner of such land or person having lawful possession thereof.”
- Ch. 161.053 (12) (c) 2 F.S. “The department may establish exemptions from the requirements of this section for minor activities determined by the department not to have adverse impacts on the coastal system. Examples of such activities include, but are not limited to... Maintenance of existing beach/dune vegetation”

## **Program Implementation**

Long term health and viability of the FMBVMP program depends on many factors including; property owner participation, plant selection, planting technique, and Managed Beach Zone design. Short term maintenance during the Managed Beach Zone establishment phase and long term maintenance during the performance phase of the FMBVMP program are also critical to long term success of each Managed Beach Zone and the overall program.

### **Managed Beach Zone Planting Guidance and Criteria**

#### **Property Owner Participation**

The long-term success of this program is dependant on continuity of each planting and the collective efforts of the program. In order for staff and partnering agencies to monitor the long-term progress of the program and for the Town to have a reasonable assurance of success after commitment of funds; it is essential to have a pledge from each property owner to maintain the planting in minimum condition. If a property owner wishes to be able to control the nature and height of vegetation and/or the height of dunes, as described in the plan, the property owner will be required to enter into an MOA with the Town for their Managed Beach Zone and adhere to the program parameters. Each MOA will be kept on file at the Town to effect compliance with the time lines, terms, and conditions of the program for current and future property owners. Each MOA will contain at a minimum:

- Property owner name, address, STRAP, number, and signature,
- Aerial photograph (available from [www.leepa.org](http://www.leepa.org) at no charge), plat, or survey of the property,
- Scaled diagram of the area to be planted and including pedestrian walkthroughs or dune walkovers (Town staff can assist by utilizing GPS mapping),
- Plant selection including species, sizes, and quantities,
- Layout and design of any proposed rope and bollard systems,
- Location of any proposed temporary irrigation,

If, at any time Town inspections reveal that the Managed Beach Zone is found to be non-compliant with the MOA, then the property owner may be required to bring the Managed Beach Zone into compliance or reimburse the Town or the County for the cost of the plant materials and/or installation.

#### **Plant Selection**

In order to allow for aesthetic appeal, plant diversity, and the development of stable soil communities, it is critical to have a diverse planting palette. Certain species such as sea oats are cosmopolitan and can be found through the state and the southeast United States. However, natural selective forces have lead to differences in plant populations and species across the state. To ensure that hybridization or competition from non-native species or varieties does not occur, it will be necessary to authenticate plant sources for dune vegetation. All FMBVMP plants must be native to southwest Florida, approved by Town, County, and DEP staff, and meet the following criteria:

- Florida Number 1 grade or better and purchased from a member nursery of the Association of Florida Native Nurseries.
- Grasses and sedges such as sea oats, muhly grass, cord grass shall be no less than 8" tall, as measured from the top of the root ball to the apical meristem. Plants shall be at least 90 to 120-days old, as measured from the approximate time of germination to the date of installation.
- All plants shall be healthy with have moist, vigorous root systems free of rot, disease, or discoloration.
- Sea oats (*Uniola paniculata*) may only originate from seeds or plant material harvested from natural stands to Florida's west and/or southwest coast (Tarpon Springs to Marco Island; local sources are preferred whenever possible).

\*\* The property owner has the option of choosing one of the following FMBVMP Managed Beach Zone palettes:

Managed Beach Zone Alternative #1 "Sea Oat Dune"

<u>Common name</u>	<u>Scientific name</u>	<u>Percentage</u>
Sea oats	( <i>Uniola paniculata</i> )	70%
Dune sunflower	( <i>Helianthus debilis var. vestitus</i> )	15%
Dune panic grass	( <i>Panicum amarum</i> )	10%
Railroad vine	( <i>Ipomoea pes-caprae</i> )	5%

Managed Beach Zone Alternative #2 "Mixed Dune"

<u>Common name</u>	<u>Scientific name</u>	<u>Percentage</u>
Sea oats	( <i>Uniola paniculata</i> )	50%
Dune sunflower	( <i>Helianthus debilis var. vestitus</i> )	20%
Dune panic grass	( <i>Panicum amarum</i> )	10%
Railroad vine	( <i>Ipomoea pes-caprae</i> )	10%

Managed Beach Zone Alternative #3 "Low Dune"

<u>Common name</u>	<u>Scientific name</u>	<u>Percentage</u>
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Dune panic grass	( <i>Panicum amarum</i> )	40%
Dune sunflower	( <i>Helianthus debilis var. vestitus</i> )	35%
Sea oats	( <i>Uniola paniculata</i> )	15%
Railroad vine	( <i>Ipomoea pes-caprae</i> )	10%

\*\* Plant list, description of growth habits, and pictures are included in Appendix A

Riparian views and privacy should be strongly considered in the Managed Beach Zone design. Property owners who participate in the program should consider their view lines before dune selection including such factors as the base elevation of their bottom floor or other seating areas. For example, if a property owner wishes to secure or maintain privacy, the a plant palate that favors sea oats (e.g. the “Sea Oat Dune”) should be selected with the plants evenly distributed across the width of the property. If a property owner wishes to maintain the majority of their riparian view then a plant palate which favors lower growing plants (e.g. the “Low Dune”) should be selected and taller growing plants can be planted towards the property lines.

### Planting Technique

The Managed Beach Zone planting, including a buffer of 10’, must be cleared of Category I or II exotic invasive plants as listed by the Florida Exotic Pest Plant Council ([www.fleppc.org](http://www.fleppc.org)) prior to planting. The planting area must also be maintained free of all exotic plants over the life of the Managed Beach Zone.

Depth of planting will vary between plant species. A water adsorbing polymer gel product (e.g., Terrasorb®, Stock-osorb®, etc.) that has been hydrated according to label directions will be placed in the hole prior to planting. All plants will be fertilized with a controlled slow release granular type fertilizer consistent with the Town’s fertilizer ordinance and watered-in at the time of installation. Irrigation should only be continued as needed for no more than three months until the plants are established.

Flat over-washed areas, should be planted as far landward as possible. Plant spacing will average 18” on plant center. This would allow more sand to blow toward the back where plants are densest. Plants will be staggered in adjacent rows to prevent aisles (lined up spaces between plants), which may erode. The most salt tolerant and hardy plants, such as sea oats, are planted in the seaward rows. Back dune plants, such as beach sunflower and salt tolerant shrubs such as inkberry, will be planted along the back row.

### Planning a Managed Beach Zone Where Dune Vegetation Currently Exists

Town staff will survey properties where dune vegetation already exists in order to determine if improvements can be made to the dune system through additional plantings. Very few properties on Estero Island have sufficient dune vegetation or dunes to adequately protect their property and Town infrastructure. Therefore, most properties which have some amount of dune vegetation would likely require supplementation. An acceptable amount of dune vegetation would span at least 75% of

the property width and be at least 10-15 feet wide with plants located on an average of 18" on center. The 75% property width should be viewed as a bare minimum only with the remaining width available to allow pedestrian access to the beach. Areas which fall below this level may be supplemented with additional plantings in order to bring them to design specification of a planted Managed Beach Zone (75% of property width, 10-15 feet wide, plant average spacing 18" on center). Since entering into an MOA for the Managed Beach Zone will give property owners ability to control dune vegetation and limit their spread, this privilege will also be extended to property owners who only require additional plantings to bring the Managed Beach Zone up to design specifications.

#### Managed Beach Zone Design with Respect to EIBRP Project Limits

The Town and County will work with property owners to position Managed Beach Zone plantings and dune walkthroughs in mutually beneficial locations. Property owners who agree to the SDR easement also give permission for the contractor to plant a Managed Beach Zone *seaward for a total width of 10-15 feet*. This is the farthest limit that a Managed Beach Zone can be planted without additional agreement from the property owner. However, a property owner may wish to have a Managed Beach Zone planted *landward* of the easement line to increase property protection, for aesthetics, or for other reasons. The Managed Beach Zone could not be located beyond the sandy beach as it would not be able to function in the absence of natural coastal stressors. The planted Managed Beach Zone should also be planted to connect to adjacent Managed Beach Zone plantings or existing dune vegetation on neighboring properties.

If a property owner wishes to have additional areas of the property planted (e.g. along the property lines) the Town and the County will consider this on a case-by-case basis. Any Managed Beach Zone vegetation however, may not be planted in a location where the vegetation would not normally survive (landward of the beach). The planted vegetation must also serve to function as part of a beach vegetation line and must benefit the Town and the property owners.

#### Managed Beach Zone Walkthrough and Walkover Design

Town staff will conduct a site visit to the property at the time of MOA submittal. Town staff will also make resources available for property owners to help them choose the most appropriate Managed Beach Zone in the most appropriate location.

The Managed Beach Zone must be at least 10-15 feet wide and a minimum of 75% of their property width, in order to develop functionality. The remaining areas of the property may be used to allow for pedestrian walkthroughs or dune walkovers. *Dune walkovers will not be required for any property associated with the EIBRP*, however, they may be permissible under LDC at the property owners expense.

The property owner will need to be thoughtful in developing a plan for beach access through or over the Managed Beach Zone. Pedestrian walkthroughs and dune walkovers should be positioned to minimize plant disturbance and maintain a viable

path over time and the LDC should be consulted for specific dune walkover requirements. Only one walkthrough will be permitted on single family. Multifamily or commercial properties will be permitted two or more in accordance with the Town regulations; however, they must be positioned to adequately manage pedestrian traffic and otherwise comply with Town regulations. Vegetation will not be planted across existing defined pedestrian access points, such as walkways. The Town will work with property owners to determine the appropriate size and position on walkthroughs, to allow continued access to the beach. The walkthroughs will generally be constructed at 45 degrees from the shoreline and be designed with meanders when desirable or applicable. This angle will reduce the possibility of a “blow out” where storm surge will run through any gap or narrowing in the dunes system. Walkthroughs which are constructed very wide and perpendicular to the shoreline also may expose upland property to increase risk of damage from storm surge. The prescribed size of dune walkthrough will be a minimum of six feet and a maximum of 10 feet.

The Managed Beach Zone boundaries will be mapped by Town staff using sub-meter GPS systems and this information will be entered into the Town’s GIS system. This information will be utilized for monitoring purposes.

### **Managed Beach Zone Planting Maintenance**

#### **Managed Beach Zone Survival and Health**

The selected EIBRP FMBVMP Managed Beach Zone contractor will be required to maintain at least an 80% survival rate to be evaluated 90 days after planting. If the planting survival rate falls below 80% due to improper installation or inadequate maintenance, then the contractor must replace the plantings to reach the 80% criteria at *no cost to the property owner*.

#### **Invasive Exotic Control**

The Managed Beach Zone planting must be maintained free of Category I or II exotic invasive plants as listed by the Florida Exotic Pest Plant Council ([www.fleppc.org](http://www.fleppc.org)). Due care must be taken to avoid damage to desirable plants in the Managed Beach Zone if herbicides are used.

#### **Nuisance Vegetation Control**

The Town recognizes that some plants have characteristics such as spines and thorns which make them unappealing. Other plants may tend to dominate planted vegetation rapidly and may out compete the planted Managed Beach Zone. Property owners may hand pull, trim, cut to the ground, or herbicide the plants listed below (the inclusion of other plants will be considered by Town staff, with the herbicide to be approved by the Town in advance. The soil characteristics of the beach environment increase the likelihood of non-target damage; therefore the only herbicide that will be authorized for use in Managed Beach Zone will be glyphosate (e.g. Roundup™) at rates of 3% or less.

Due care must be taken to avoid overspray. Town staff will assist property owners with recognition and suggested control methods for these species. It is not anticipated that DEP field permits will be necessary for control or removal of these plants since the entirety of each planting area is assumed to mitigate for the loss of any plants.

Species designated for homeowner control:

<u>Common name</u>	<u>Scientific name</u>
Nicker bean	( <i>Caesalpinia bonduc</i> )
Sand spur	( <i>Cenchrus spp.</i> )
Coin vine	( <i>Dalbergia ecastaphyllum</i> )

### Raking

Raking will be allowed either within two feet of the Managed Beach Zone or along a boundary mapped by the Town. The Town strongly encourages hand raking only within 10 feet of the Managed Beach Zone, however permitted mechanical raking which conforms to LDC Sec. 14-6. For Managed Beach Zone participating properties only, the 10' buffer described in LDC Sec. 14-6 (c) (4) d. (5) will be reduced to two feet along the mapped boundary (after adoption by ordinance or codified). Hand raking may be allowed immediately adjacent to vegetation in the mapped and maintained pedestrian walkthroughs only. Property owners will also be permitted to mechanically rake within 2' of their legal property lines (the Town may request surveys to verify this). The boundary for raking can either be mapped by sub-meter GPS systems or by rope and bollard systems. All raking methodologies must be in accordance with Town and State regulations, particularly with regard to sea turtle conservation. Beach raking which results in damage or destruction to sea turtle nests or nesting habitat will result in enforcement action.

### Rope and Bollard Systems

Rope and bollard systems (RBS) are used by property owners to designate their ownership lines, protect vegetation, and to prevent public trespass onto their property. *However, RBS may not be used in impede public lateral beach access on public beach under Chapter 161 F.S.* In addition to these current outlined above, RBS may be very useful for determining lines up to which the beach may be raked. RBS would provide assurance to property owners that they would be able to retain control of their beach for the purpose of raking, which is a very common practice on Fort Myers Beach. However, RBS pose a legitimate threat to the health and nesting success of sea turtles and their hatchlings by posing as a vertical obstruction. This could be mitigated by the careful spacing of bollards (at least 15' apart) and the height of the rope (at least 36" off the sand). All posts must be round and no more than 6" in diameter. Posts may not be seated in the sand with concrete. In the scope of this Managed Beach Zone program, RBS can only be used only on a temporary basis (e.g. less than three years). Current Town LDC appears to prohibit permanent structures such as rope and bollard without a Special Exception. Any RBS systems installed may only be installed on a temporary basis (less than three years) until or unless the LDC is changed to allow RBS permanently. MRTF and Town staff will assist in the revision of pertinent sections of the LDC. Permanent RBS may be

considered but the property owner must provide adequate justification and would require a permit from the DEP as well as a Special Exception pursuant to LDC Sec. 34-88. The above is a guideline only and specifics will need to be addressed at the time of application.

With permission of the property owner, the Town may act as an agent to secure any necessary permits from the Florida Department of Environmental Protection for RBS.

### Irrigation

The beach environment is very harsh and dune vegetation is adapted to this environment. Under normal circumstances most exotic invasive vegetation such as Brazilian pepper can not compete against dune native. Regular irrigation from sprinkler systems can lead to a lowering of soil salinity levels and therefore, increase the competitive advantage of most exotic species. Therefore, permanent irrigation must be strictly limited to allow for a natural condition that dune plants are adapted for. However, the establishment phase (particularly the first three months) is critical to long term success of the Managed Beach Zone, especially during the dry season. Temporary above ground irrigation will be permitted for the first three months of a Managed Beach Zone planting in accordance with Town and South Florida Water Management District requirements. The design must be approved by Town staff to ensure compliance with sea turtle protection rules and criteria.

### Vegetation Trimming

The Town recognizes that property owners may have a concern with the height of dunes plants or their Managed Beach Zone and this concern has lead to many areas on the beach that are barren of all vegetation. A balanced approach that takes into account riparian views and nurture of the Managed Beach Zone is critical to encouraging property owner participation and giving them a sense of control of their Managed Beach Zone. One approach is to utilize similar principles as out lined in the 1996 Mangrove Trimming and Preservation Act (Ch. 403.9321 Florida Statutes). The Mangrove Act takes into consideration riparian views and balances the biological criteria of mangroves. This would provide as an appropriate model for Managed Beach Zone vegetation control.

A vegetation removal permit must be applied for prior to the first Managed Beach Zone trimming event. This special permit will be good for three years at no cost to the property owner. The vegetation removal permit may be issued at the time of Managed Beach Zone planting to reduce processing time and effort for Town staff and the property owner. Managed Beach Zone trimming must meet the following criteria:

- Trimming will not be permitted on Town, State, or County property.
- Property owners are encouraged to create view "windows" rather than hedging vegetation in the Managed Beach Zone.
- Trimming in the Managed Beach Zone shall not reduce the overall height of the individual plant to less than four feet above the substrate.

- Trimming shall not remove more than 25 percent of the leaf surface of any individual plant in any one year.
- The post-trimmed appearance of the vegetation shall not be hedged or flattened but will emulate a natural growth pattern. This may be accomplished by alternately trimming portions of the vegetation combined with trimming some branches of individual plants while leaving other branches longer.

#### Dune Height Modification

Managed Beach Zones, by their nature, can be expected to accumulate sand and build a dune. In fact, a healthy, functioning dune would be at least 18-24" elevated over surrounding natural grade. This height is actually important for vigorous root establishment and nutrient cycling. As discussed elsewhere in this plan, this increase in grade in the Managed Beach Zone may not be significant enough to impair riparian views. However, there are potentially local conditions which may cause dunes to build significantly higher. The potential for these situations to impair riparian views may cause enough reticence with property owners that they may not choose to participate in the program. Therefore it is important to allow property owners to control their dune height to some extent. Managed Beach Zone dune heights may be lowered according to the following criteria:

- Dune height may only be lowered by hand (e.g. shovels).
- When dunes are lowered, the slope from surrounding natural grade to the Managed Beach Zone grade may not be exceeded by creation of an escarpment.
- Sand may not be removed from the beach area. Sand removed from the Managed Beach Zone must be spread within 50' of the surrounding beach.
- Dunes may not be lowered during turtle season which runs from May 1<sup>st</sup> to October 31<sup>st</sup> of each year.
- Dunes may only be lowered 18" per year and the dune may not be lowered to 18" or less to ensure a healthy, functioning Managed Beach Zone.
- A free Dune Lowering permit will be required for each dune lowering event. Upon consent of the property owner, the Town may act as an agent to acquire any necessary CCCL permits from the DEP. Typically, these permits are limited to no more than one foot of lowering per event.
- Dunes may not be lowered if any threatened or endangered species or utilizing them during their nesting season (e.g. snowy plovers).

#### Reduction of Managed Beach Zone Plantings to Original Condition

While the Town encourages property owners to make Managed Beach Zone planting permanent, the Town recognizes that in order to foster wide spread participation, the property owner must be assured a sense of control of their property. A balanced approach will take into consideration the property owners desire for personal property management as well as the return on investment in Managed Beach Zone plantings for the Town. Ideally, property owners who have uncertainties about retaining property control while in the program, will be persuaded to allow their Managed Beach Zone to

self manage once they witness the improvement in aesthetics and property protection that a dune would provide. It is estimated that a Managed Beach Zone would be fully mature and self sustaining, with little maintenance required, within one year.

If a property owner were to allow their Managed Beach Zone to spread beyond the minimum prescribed limits without utilizing the management mechanism in this plan, the area has the potential for the area of beach vegetation to increase. If a current or future property owner wishes to reduce the beach vegetation limits back to the original size as delineated in the MOA, then the Town will act as an agent to secure any necessary permits from DEP. The Managed Beach Zone may not be reduced beyond the original prescribed size. Since the overall scope of this program and the EIBRP will vastly increase the overall amount of vegetation on Fort Myers Beach, it is possible the entirety of the plantings associated with the EIBRP may offset any individual reductions which may be requested. While the Town will act as an agent with DEP to secure any necessary permits, the DEP will make each determination on a case-by-case basis. The DEP may require mitigation for any reduction of dune vegetation on an individual property and the Town may elect to provide this mitigation elsewhere on the beach.

Any reduction of a Managed Beach Zone to the original condition must meet the following criteria:

- Plants may be treated with herbicide or cut flush with the ground only. All vegetative debris must be removed from the beach. Root or stump removal will not be permitted.
- Sand that is bermed or mounded from the Managed Beach Zone may not be removed from the beach. Sand that is bermed or mounded from the Managed Beach Zone may only be removed if it is in excess of three feet higher than natural, surrounding grade, and permitted by DEP.
- Managed Beach Zones on Town, County, or State property may not be reduced or removed.