Island Green Living Association

Commercial Composting Phase 1: Vegetation Chipping

Community Foundation of the VI Grant RFP

History

Island Green Living Association (hereafter, Island Green) is an award-winning non-profit organization dedicated to preservation, conservation and environmentally responsible living on St. John and beyond. It got its start 15 years ago as Island Green Building Association with the mandate to promote green building and sustainable development. Its scope was expanded to encompass all aspects of sustainable living on its tenth anniversary in 2014 when it became Island Green Living Association.

Over the years Island Green has been a trailblazer in initiating meaningful change on St. John and throughout the territory including establishment of the island's ReSource Depot, which has allowed 290,000 lbs. of building materials to be repurposed/reused to date, items that would have otherwise wound up in the overflowing landfills. The organization also launched Green Building and Green Villa Certificate programs that encourage builders to use eco-friendly practices. Island Green launched the Preserve St. John initiative to combat recycling issues on the island and has organized countless beach cleanups of bottles, cans and other debris. To date, hundreds of thousands of aluminum cans have been collected and crushed for recycling. Green education and reward programs with both private and public schools and local organizations have been created. Island Green has also been a leader in advocating for legislation to ban straws, plastic bags and now oxybenzone in sunscreen, working with legislators to write bills and cosponsor town hall events to education the community on the vital issues. One of their proudest accomplishments was preserving the air we breathe with the "Ban the Burn" campaign to prevent the burning of hurricane debris on all three islands following the devastating effects of Irma and Maria.

Their latest endeavor is the Sustainable Living Center, currently under construction and set to launch later this year. It offers a groundbreaking approach to accelerating zero waste/energy sustainability including facilities for composting, recycling glass, plastic and used cooking oil from restaurants (for power), solar energy, co-op food market and garden, expanded ReSource Depot, green education and training and a community center.

Below is a timeline of Island Green milestones:

2004: Island Green Building Association founded. Promote green building & sustainable development. Educate public on pollution to oceans, etc. caused by construction.

2005: Produced **Guidelines of Sustainable Green Building Design and Construction**

2008: Established IGBA "**Tropical Residential Green Building Certification Program"**

2008: National Oceanic Atmospheric Administration (NOAA) Community Service Award

2008-2017: Monthly "**Green Thursdays**" Island Sustainability Series – over 50 public seminars, environmental film showings and vegan potluck dinners. (These have been on hold since the destruction of its headquarters during Hurricanes Irma & Maria in Fall 2017 but will resume with the launch of the Sustainable Living Center)

2012: Received **EPA Environmental Quality Award for Region 2.**

2012 -2013: NOAA Grants -**VI Green Construction Rewards Program I & II**, Produced 3 PSA videos on environmentally friendly design, construction & living. Conducted Green Building & Site Design Training Seminars.

2012-Present: Opened **ReSource Depot.** Accept donations, usable construction & household materials. Sell items, very reasonable prices. Currently six 20' containers of usable items, diverting 290,000+ lbs. of waste from landfill on St. Thomas.

2014: **IGBA'S 10 Anniversary**, expanded the scope of work from building to living and rebranded as the **ISLAND GREEN LIVING ASSOCIATION.**

2014: **Began collection and recycling of Aluminum Beverage Cans** in partnership with the St. John Community Foundation. Purchased aluminum can compactor to crush and bale used beverage cans for shipment to U.S. aluminum manufacturer. Initiated "Preserve St. John" campaign.

2015: Established the **Green Villa Certification Program**, to provide guidelines for environmentally responsible villa operations and use. St. John has more than 1000 rental villas that have major impact on water, energy and waste production and use.

2016: **K-12 Sustainable Curriculum** development with Department Of Education.

2016: Worked with legislators on single-use **Plastic Bag Ban** legislation.

2016 – Present: Began work with legislators on efforts to ban the importation and sale of sunscreen containing **Oxybenzone**, which is devastating to coral reefs and marine life.

2017: Established the **Green Restaurant Program** to promote elimination of single use disposable plastic and to promote composting and glass and aluminum recycling.

2017: Worked with legislators on **Source Separation/Composting legislation**.

2017-2018: Lead efforts to **Ban the Burn** of hurricane debris following Irma & Maria.

2018: Worked with legislators on legislation to **Ban Plastic Straws**.

2018: Promote the **Solarize St. John** campaign with a $75,000 donor grant.

2018-2019: Creation of **Sustainable Living Center**, including facilities for composting, recycling glass, plastic, aluminium and used cooking oil, solar energy, co-op food market and garden, expanded ReSource Depot, green education and community center.

Mission

Island Green Living Association (hereafter, Island Green) is a leading proponent of sustainability with the mission to transform the USVI into a net zero waste, carbon-neutral territory in order to protect the environment and ensure the health, welfare and economic security of the islands. As St. John is the smallest and least developed of the three, we have put our primary focus here. The aim is for the island to become the model for the territory, the Caribbean and beyond.

Island Green endeavors to achieve this through promoting low impact island living, responsible business & government practices, green design/construction and sustainable development. Island Green believes that a holistic, multi-prong approach can help preserve and protect the spectacular beauty and natural diversity that provides ecological health, a sense of community and the unique quality of life on St John and within the territory. Tourism is vital to our economic well-being but the challenge is to protect the natural treasures that bring visitors to our shores while continuing to welcome and engage these guests. We are committed to establishing St. John and the territory as an eco-destination.

Island Green's driving principles are cooperation, community involvement/support and education. Its multifaceted approach focuses on improving conditions, setting new protocols, and promoting awareness and understanding. Trash disposal has long been a major issue that threatens our fragile ecosystems. Responsible zero-waste island living must become the goal. Island Green sees the following as key to this effort:

1. Promote concept of "Rethinking" before one purchases an item. Do I want it? Or do I need it? What do I already have that could serve this purpose?

2. Reduce consumption which will contribute to waste reduction. Avoid use of items that are bad for the environment such as sunscreen with oxybenzone.

3. Encourage Reuse and Recycling along with clean energy & composting.

4. Practice: Rethink, Reduce, Reuse, Recycle.

In order to support this practice, Island Green sees the following as vital components:

- Promote partnership and coordination between various government agencies/departments along with environmental/civic organizations and the private sector. The idea is to pool resources and work together.

- Accelerate the adoption of aggressive solid waste reduction, reuse, composting, recycling as well as clean energy and avoidance of harmful products.

- Advocate establishment of a Vocational Job Training Center that emphasizes Sustainable Materials Management (SMM) and related job creation activities.

- Educate including school curriculum to teach benefits of recycling, composting and environmentally responsible practices as well as the devastating environmental impact without such practices.

- Build excitement and engagement of all residents and visitors, including youth — instilling ownership and pride in the initiatives and progress.

If we all work together as ONE, we can accomplish and preserve our islands from economic and environmental collapse.

Island Served Further Explanation

St. John has experienced major challenges with getting resources after the storm due to lack of operating barges, logistical challenges from lack of proper equipment, narrow roads, and lack of multiple access options, etc. Currently, the St. John capital improvement fund is

being diverted to haul waste from St. John to the Bovoni landfill in St. Thomas, which refunnels vital funding from the residents of St. John. Island Green's zero-waste initiatives will help combat this hardship by reducing the volume of landfill hauls. The reality is, much of our "waste" can be used as a resource. Prior to Irma and Maria, our Resource Depot was successful in diverting approximately 290,000 lbs of building and household items from the landfill. The island is in desperate need for the Resource Depot to reopen before hurricane season and our goal is to offer expanded facilities so we can accept more types of recyclable items to provide an even greater reduction of potential hurricane debris going to the landfill. With a small grant from FEMA our new building damages are being renovated. However, the inside infrastructure needs to be built for the Resource Depot to be operational.

Community Foundation of St. John
Friends of Virgin Islands National Park
Virgin Islands National Park
Island Administrator
VI Waste Management
Public Works Department
Caribbean Green Technology Center
Iowa State University EARTH Program
Get Trashed
Local landscapers
Local construction companies

Background/impetus and relevance to hurricane recovery

In 2017, the island of St. John suffered significant damage from two category-5 hurricanes. In the days and weeks following these storms tens of thousands of cubic yards of vegetative debris arrived at the Susannaberg Transfer Station (STS) in volumes that greatly exceeded site capacity. This caused a backlog of debris needing to be processed at the STS and subsequently debris then backed up at centralized waste drop offs throughout the island. For example, a 5-foot-tall, quarter mile long pile of debris lined the street across from the Coral Bay dumpsters in excess of 6 weeks due to this backlog at the STS.

Vegetative debris made up the majority of post hurricane material. Debate ensued on how to best handle this overwhelming amount of material. The suggestion to incinerate the material sparked outcry over the environmental hazards associated with inevitably impacted air quality. In such large piles this material also poses a fire hazard as was seen in an October 2018 fire at the Anguilla Landfill in St. Croix that spread across partially processed post hurricane vegetative material. Ultimately, the dilemma necessitated the importation of a horizontal shredder to reduce volume to a manageable size for hauling (6-24 inches) but was still not suitable for landscape or agriculture (must pass through a 4-inch screen). While some material was then further processed and a small amount given back to the community to use as mulch, a large majority of this 6 to 24-inch material was transported from St. John to St. Thomas, thus stripping this valuable resource from the people and land of St. John. The wood chips from St. John were shipped to the Cancryn facility on St. Thomas. Ironically, the wood chips at the Cancryn facility are now available to the public for free but St. Johnians are responsible at their own expense to transport the wood chips back to St. John.

A major problem with brush management is that it is considered to be a waste material that needs to be reduced in size and taken to the landfill. This mindset needs to be changed so that brush processed into wood chips is viewed as a valuable commodity that can be

returned to the earth as either landscape mulch or compost for residential and agriculture use. Processing the brush in close proximity to its origin also reduces expensive trucking costs. Currently and for years, brush brought to STS has been pushed over the edge of the "dump site" creating an unstable mass of wood and potential fire hazard simply because there is no chipping equipment and program to process the wood debris as it comes to the STS facility. Brush not completely processed into usable wood chips from the 2017 hurricanes was also pushed over the edge of the "dump site" which added to this dilemma. Had a municipal scale chipping operation been established before the storm the machine would be waiting on site to process post-hurricane vegetative debris as the material arrived. Of the material pushed over the edge at the STS, Island Green estimates 3000 cubic yards can be recovered and re-chipped and screened to be used for mulch and compost.

Furthermore, in a 2009 study analyzing the Virgin Islands waste stream, two-thirds of the volume was compostable. With landfill closures looming we can extend the life of the landfills and slash solid waste transportation costs while providing a key element to comprehensive recycling of municipal solid waste (MSW) on St. John. A hurricane hardened municipal chipping and composting operation prompts efficient local harvesting of a disaster recovery supply. This has multiple benefits to the community. It allows the community to avoid incineration of vegetative debris, instead sequestering most of the carbon into the soil rather than emitting it into the atmosphere and oceans. In addition, it allows for the immediate response to handling this material reducing backlog at the STS and saving on time, cost, carbon footprint and resources associated with transporting this material off island.

In partnership with the VI Waste Management Authority (WMA), Island Green aims to process vegetation waste brought to STS into a valuable woodchip and compost product rather than having it dumped as a burden into the landfills at STS and Bovoni.

Proposed Activities

Island Green is proposing chipping brush debris on St. John as the first phase of a larger commercial scale composting operation eventually capable of handling both organic and non-organic feed stocks. These feed stocks include:

Organic: (suitable for edible crop soil amendment)
-yard trimmings (grass clippings, leaves, brush, trees, etc.)
-food wastes (restaurant and grocery store's wastes, except grease trap waste, frutis, vegetables, meats, beer, wine, beverages, milk
-untreated/unpainted wood
-paperboard such as cereal, cracker, cookie boxes
-waxed cardboard
-dead animals

Non-Organic: (suitable for non-edible crop soil amendment)
-grease trap wastes

To achieve this larger composting vision we propose obtaining a wood chipper as the first phase. From this foundation the rest of the operation can be built. The chipper creates a less than 4-inch, landscape or compost ready chip. Vegetative debris remaining from the hurricane as well as material currently being brought in from local landscapers will be delivered to a 1 acre site, chipped and properly staged for future use in the public. A wheel loader will be used to move chipped material into the staging area and into trucks of landscapers and the public. The wheel loader can be used in additional phases of the composting operation when building composting rows as well as at the Resource Depot to

handle large pieces of Construction and Demolition material and bales of material recovered for recycling. A topsoil screener will be used for final product processing, sorting out material that was not completely broken down. A water tank is kept on site for moisture management of wood chip piles to prevent fire. In future phases of the composting program this can be used to activate the composting process. A skilled operator will be hired to oversee safe operation of wood chipper and storage of chipped material. A manual laborer will be hired to assist the site manager and to feed brush into chipping machine. Each will work 12.5 hours/week for the 6-month grant period.

Key Personnel

-David Minner, Ph. D Coordinator of the Iowa State University EARTH Program at Gifft Hill School will oversee the operation
-Site Manager - operates chipper (Job created)
-Laborer - assists site manager (Job created)

Partnerships

Virgin Island Waste Management Authority
Virgin Island Public Works
Local landscapers
Iowa State University
Gifft Hill School
Caribbean Green Technology Center, UVI

Timeline

May 15: Meet with VI Waste Management Authority and VI Public Works to organize space available for brush chipping/composting project at STS. The proposed site is located immediately east of the Island Green Living Sustainable Living Center. Purchase brush chipper. Meet with local landscapers to discuss new program.

July 15: Estimated delivery of chipper. Begin accepting and staging material from landscapers. Recover vegetative debris pushed over the edge at STS. Measure cubic yards of brush diverted from the STS and Bovoni Landfill.

August 15: Begin wood chipping and measure chipped brush diverted from STS and Bovoni Landfill. Submit first quarter report to CFVI.

September 15: Continue wood chipping, measuring chipped brush diverted from STS and Bovoni Landfill.

October 15: Continue wood chipping, measuring chipped material. Post update on Island Green Living's website.

November 15: Continue wood chipping, measuring chipped material. Submit second quarter report to CFVI.

December: Submit final report to CFVI. Turn equipment and operation over to Island Green Living Association.

Reporting

Truckloads of vegetative material will be measured and recorded in cubic yards as they are delivered to STS. Any vegetation not suitable for chipping will be stored for processing with a tub grinder at a later date. Raw brush delivered and processed chip material will be tallied monthly. Cubic yards diverted will be reported quarterly. For final reporting all vegetative material will be presented as volume (cubic yards) and weight (pounds or tons) measurements.

Expected Outcome

Objective	Outcome	Indicator
Process additional vegetative material overwhelming the STS post hurricanes	Immediately begin to chip additional debris as it's delivered post hurricane. STS will have less to handle and process	Chipper is on island and area is staged and ready to receive and process material immediately following a hurricane
Reduce burden to STS and Bovoni Landfill by diverting cubic yards of compostable vegetative material	1000 cubic yards of wood chips will be processed from brush brought to STS. Additionally, 2000 cubic yards of existing horizontally ground material in the 6 to 24-inch range will be reprocessed through additional chipping to be used in the mulching and composting program. This is a net reduction of 3000 cubic yards of vegetative material that would be added to the burden of the STS and Bovoni Landfills.	Chipper has arrived on island and community announcement made we are ready to receive material. Incoming material volume is measured before and after chipping. Material is chipped and staged for future uses
Municipal Solid Waste transportation costs are reduced	Funds used to transport vegetative waste to St. Thomas are saved because material is processed on island	Cubic yards diverted will also be reported as costs saved from transporting St. John material to St. Thomas.
Carbon sequestration	Chipped material can be given back to landscapers and homeowners. It can be used as the carbon source for the next phase of commercial composting and for use in erosion control, soil moisture retention, soil amendment and as a plant growing media	Chipped material is staged and ready for public use. Landscapers are obtaining material to use with their clients. Island Green Living Association will host Free Mulch Giveaway days as a way to give back to community

Budget:

Line Item	Cost
Equipment	
Vermeer BC1800XL Wood Chipper	$80,000
John Deere 204L 4WD Loader	$70,000
Topsoil screener EZ-Screen 600	$11,900
Watering tank ABI 1000 gal	$10,600
Equipment Subtotal	**$172,500**
Salary	
Site Manager $30/hr/25 hours/week/6 months	$9,000
Laborer $20/hr/25 hours/week/6 months	$6,000
Salary Subtotal	**$15,000**
Budget Total	**$187,500**