



# Key Biscayne Sustainability Report

March 2018

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Prepared By:



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## A Message From The Founder

"As the scale of resource availability tips less and less in our favor, choices need to be made and technologies implemented that will have a drastic impact on existing operational conditions. Concepts such as resource management, alternative energy and sustainable solutions must not only become part of our vernacular, but also part of our moral fiber."

**Derek Duzoglu | Founder & CEO**



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### Needed Council Decisions

- Solar array & battery backup for government buildings
- Rainwater harvesting system for Village Green
- Solar panels & charging stations for FreeBee
- Atmospheric water generators (AWGs) for offices
- ChemStation cleaning services solution
- Doggy disposal bags options
- Waste-to-energy pursuit

### March Report Overview

This month's report covers a number of topics, each of which are outlined below:

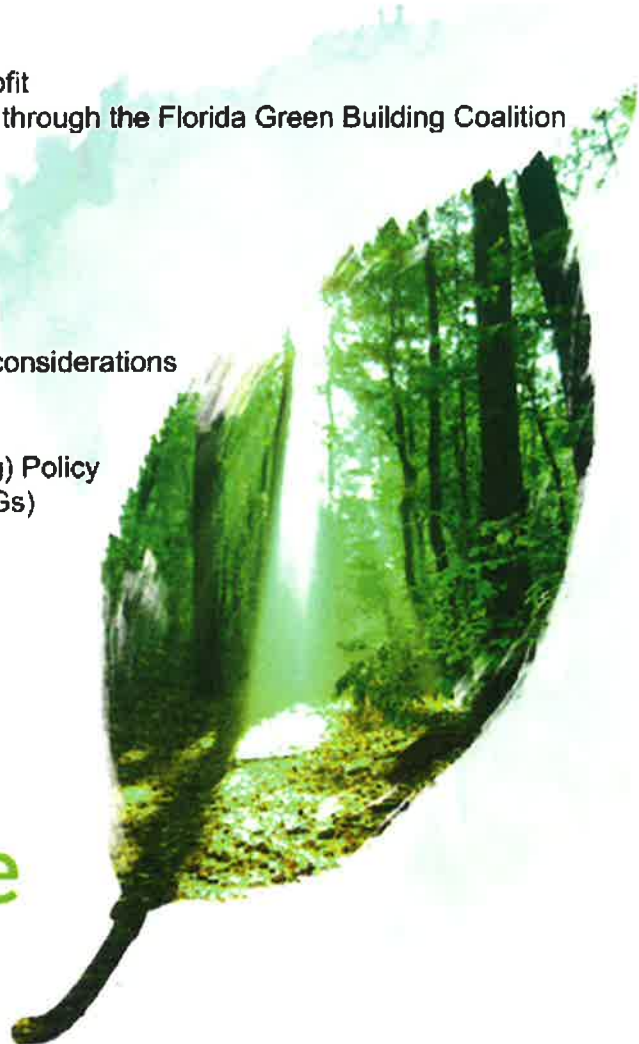
#### Report Elements

- FreeBee solar roof tops, and solar charging stations
- Dog bags analysis & potential solutions
- Business certification program launched
- Community Center gymnasium lighting retrofit
- Get certified as a Green Local Government through the Florida Green Building Coalition
- Sustainable Events Protocol

#### Previously Reported Items That Require Attention

- Village Green rainwater harvesting system
- Community Center lighting retrofit
- Battery backup for Community Center
- Underground utilities & sustainable design considerations
- Fire station bathroom renovation
- Eco-friendly library design
- EPP (Environmentally Preferred Purchasing) Policy
  - Atmospheric water generators (AWGs)
  - ChemStation cleaning services

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## FreeBee Solar Charging Stations

Tuesday, March 20<sup>th</sup>, 2018

Phone call with the company Charge Point to discuss the charging stations they offer that would be applicable to FreeBee. The system recommended (which is highlighted below), has the ability to be connected to both the grid, and a PV system with battery storage to offset energy consumption. Furthermore, after discussing the application with a representative from FreeBee, we discovered they are using this same charging station for the services area in Coral Gables.

This completely cloud based turn-key solution can be deployed without increasing staff or employing your IT resources.

“We currently utilize the CT4000 ChargePoint chargers for our Coral Gables operation (Level 2 ChargePoint chargers) in order to maximize battery life, given our short scheduled breaks throughout the day.”

Kris Kimball | Managing Partner - FreeBee



- ChargePoint currently has over 7,000 customers & has installed over 40,000 charging ports
- The world’s first PCI-compliant charging services network, allowing flexible driver payment options
- The only EV charging services network providing 24 x 7 x 365 driver support
- Automatic cable retraction comes standard with every station
- 5.7” LCD Color Display – Full resolution animation instructs users on how to use the station and can also be used for announcements and events..





### ChargePoint C4000 Series Charger

Equipment	Pricing	Notes
CT4011	\$5,010	Single port, bollard style
CT4013	\$4,505	Single port, wall mount
CT4021	\$7,210	Dual port, bollard style
CT4023	\$6,705	Dual port, wall mount
Network Service Plans	\$280/port/year	Multiple year, pre-pay plans
Initial Station & Activation Fee	\$349	One-time fee
Site Validation Fee	\$599	*Required if electrical make ready and installation is performed by a non-certified ChargePoint installation O&M partner

### Dog Stations and Doggie Bags

During January 2018, I had a conversation with Councilmember Luis De la Cruz regarding his concern over the purchase and appropriate disposal of doggie bags here in the Village. Subsequently, I met with **Mariana Dominguez-Hardie** (of the Development Services Department), and we discussed in depth current practices, and potential solutions. This section is dedicated to the analysis of existing conditions, and also provides a solution that is very cost effective.

-  Original 44 installed dog stations (2013-2014)
-  Four (4) additional approved stations after the CIP project.





## Dog Stations and Doggie Bags Continued

Currently, the Village is purchasing a product called Mutt Mitt Singles, that come in 2,000 per case. The Village purchases in bulk, and therefore receives a discount on the product. The previous vendor was Highland products, and this changed in 2016 when the product transitioned from rolls to "envelope style" dispensers.

### Mutt Mitt Singles

- Case of 2,000 (1 case) | \$92.99/case (\$0.046/bag)
- Case of 2,000 (30 cases) | \$74.99/case (\$0.037/bag)
- Resulting in a savings of \$18/case with the bulk purchase.

### Cost From August 2016 To Date

- \$14,000 for bags,
- \$3,400 for equipment (added stations and replacement parts)

### New Stations & Requests

Throughout the years, there has been various requests to place additional stations. The latest request was for Myrtlewood Drive, which was denied based on the following criteria:

- To place only on Crandon Blvd, Harbor Drive, multi-family roads and in front of K-8. The goal achieved was to offer this service to the vast majority of the population.

There are four (4) exceptions, which are as follows:

- Three (3) on the way to the Dog Park along W. Heather (as per Councilmember Petros' request),
- One (1) before Mashta Bridge, as per Mashta Island's Association request.

### Plausible Solution

While doing some research, I came across a product called Flush Puppies, which offers a biodegradable bag. The bags are made from Polyvinyl Alcohol (PVA), which means the bag can be flushed directly down the toilet.

[www.flushpuppies.com](http://www.flushpuppies.com)



Flush Puppies  
(80 Count)



- Chewy.com | \$9.99 | \$0.124/bag
- Petocart.com | \$11.49 | \$0.143/bag
- Amazon.com | \$12.99 | \$0.162/bag





## Key Biscayne's Green Business Initiative

In March 2018, we launched the Green Business certification program. Since most businesses here on the Key lease office space, we took an operational approach and created a comprehensive checklist. Each business must complete the checklist and receive a minimum score of 70 in order to receive their sticker and certification. Follow this link to learn more: [www.d-squaredengineering.com/pages/green-business-initiative-vokb/](http://www.d-squaredengineering.com/pages/green-business-initiative-vokb/)



## Green Business Checklist

Powered By D Squared Engineering

### Company Information

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Contact: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_  
 Office Size (sq ft): \_\_\_\_\_  
 No. of Employees: \_\_\_\_\_

### Key Biscayne Businesses >>>>

With nearly **450** storefronts spread across **14** commercial properties, our business community can make a **HUGE IMPACT!**



Choose The Most Applicable Business Category From The List Below

- Bank     Church     Condo     Fitness     Gas Station     Hotel     Medical  
 Office     Restaurant     Retail     Service     School     Other: \_\_\_\_\_

### The Checklist

This checklist is made up of 5 categories, each with 5 questions. Please answer either "YES" or "NO" for each question. For each question answered "YES", you will receive 4 points, with a max possible score of 100 points. In order to attain the GREEN BUSINESS CERTIFICATION, you must have a score of 70 or greater. Your final result will be calculated for you at the bottom of this checklist.

Waste (5 possible points)		Yes	No	Pts.
1	Review current practices and identify areas where improvements can be made.	<input type="checkbox"/>	<input type="checkbox"/>	0
2	Perform a waste audit to calculate how much of each waste stream you produce.	<input type="checkbox"/>	<input type="checkbox"/>	0
3	Educate your staff on waste segregation and recycling techniques/options.	<input type="checkbox"/>	<input type="checkbox"/>	0
4	Digitize operations to minimize the necessity for keeping paper records.	<input type="checkbox"/>	<input type="checkbox"/>	0
5	Develop a waste segregation system for food waste, packaging, recyclables, etc.	<input type="checkbox"/>	<input type="checkbox"/>	0

Water (5 possible points)		Yes	No	Pts.
1	Educate employees about the importance and benefits of water conservation.	<input type="checkbox"/>	<input type="checkbox"/>	0
2	Eliminate the purchase of bottled water for your office, and offer water through a fountain or water service.	<input type="checkbox"/>	<input type="checkbox"/>	0
3	Install an atmospheric water generator in your office to eliminate the need for a water delivery service.	<input type="checkbox"/>	<input type="checkbox"/>	0
4	Install low flow fixtures such as toilets, dishwashers and faucets to minimize use.	<input type="checkbox"/>	<input type="checkbox"/>	0
5	Install a rainwater harvesting system in your building for use in toilets, irrigation and cooling.	<input type="checkbox"/>	<input type="checkbox"/>	0

Energy Efficiency (5 possible points)		Yes	No	Pts.
1	Review electricity consumption patterns (utility statements) to identify times of most use.	<input type="checkbox"/>	<input type="checkbox"/>	0
2	Train employees & staff to turn off equipment and appliances when not required.	<input type="checkbox"/>	<input type="checkbox"/>	0
3	Create a schedule to ensure air filters and HVAC systems are maintained on a regular basis.	<input type="checkbox"/>	<input type="checkbox"/>	0
4	Install energy savings measures such as zoned controls and/or motion sensors.	<input type="checkbox"/>	<input type="checkbox"/>	0
5	Switch out your existing lighting to LED's or other high efficiency bulbs to reduce energy consumption.	<input type="checkbox"/>	<input type="checkbox"/>	0

Green Purchasing (5 possible points)		Yes	No	Pts.
1	Pledge to join the Green Purchasing Co-Op to have access to eco-friendly products at a competitive price	<input type="checkbox"/>	<input type="checkbox"/>	0
2	When upgrading, integrate energy efficient appliances and equipment.	<input type="checkbox"/>	<input type="checkbox"/>	0
3	Eliminate the use of plastic bags, and replace with reusable options.	<input type="checkbox"/>	<input type="checkbox"/>	0
4	Purchase environmentally friendly products, such as recycled content paper.	<input type="checkbox"/>	<input type="checkbox"/>	0
5	Minimize the purchase of disposable products such as paper cups and pod-style coffee elements.	<input type="checkbox"/>	<input type="checkbox"/>	0

Transportation (5 possible points)		Yes	No	Pts.
1	When possible, host meetings virtually to minimize travel based emissions and traffic congestion.	<input type="checkbox"/>	<input type="checkbox"/>	0
2	Participating in the Village's Walk It Wednesdays initiative by walking, biking or using a golf cart.	<input type="checkbox"/>	<input type="checkbox"/>	0
3	Utilize the services of LimeBike and FreeBee to commute to and from work, and/or during lunch hours.	<input type="checkbox"/>	<input type="checkbox"/>	0
4	Implemented a carpooling or alternative transportation program with employees/staff.	<input type="checkbox"/>	<input type="checkbox"/>	0
5	Offer preferred parking for electric/hybrid vehicles and/or golf carts.	<input type="checkbox"/>	<input type="checkbox"/>	0

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## Community Center Gymnasium Lighting Retrofit

Continuing on the efforts of the lighting retrofit for the Community Center (for which a grant was submitted), we've recently completed an analysis to upgrade the lights in the gymnasium. See below for numbers.

Baseline Case			
No. of Fixtures	Watts	No. of Bulbs	Total Wattage
38	42	8	12,768
Usage Per Year (hrs)	Annual Usage (kWh)	Avg. Utility Rate (\$/kWh)	Annual Energy Cost (\$)
5,900	75,331	0.0784	\$5,905.97

LED Design Case		
No. of Fixtures	Watts	Total Wattage
38	165	6,270
Usage Per Year (hrs)	Annual Usage (kWh)	Annual Energy Cost (\$)
5,900	36,993	\$2,900.25

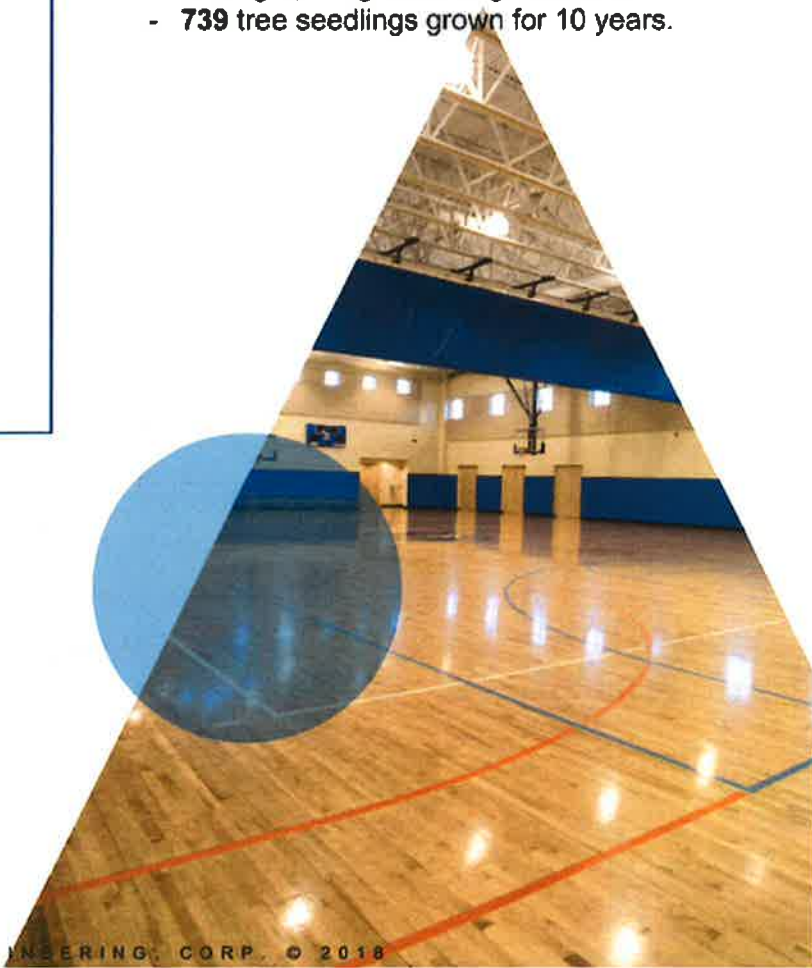
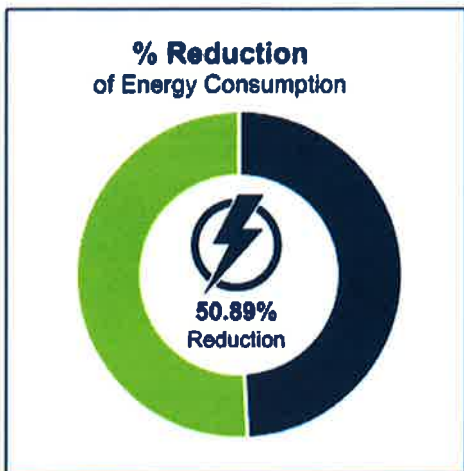
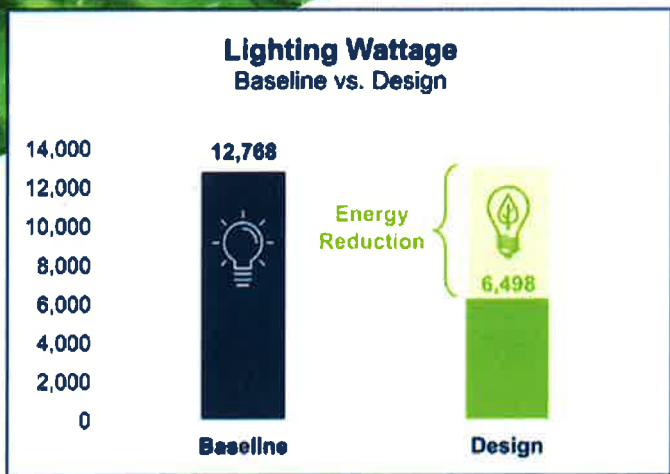
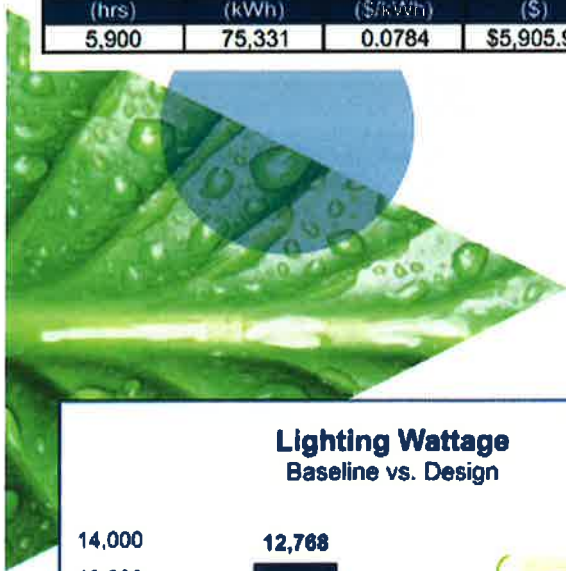
Savings Analysis	
Wattage Reduction	% Change
6,498	50.89%
Energy Reduction (kWh)	Cost Savings (\$)
38,338	\$3,005.71

### Environmental Impact (6,498 Watt Reduction)

The energy savings resulting from a transition to high efficiency LEDs is equivalent to:

Saving **38,338 kWh/year**,

- Preventing **28.5** metric tons of greenhouse gas emissions, or
- Recycling **9.9** tons of waste, or
- Saving **3,211** gallons of gasoline, or
- **739** tree seedlings grown for 10 years.





## Florida Green Building Coalition Certification | Green Local Government

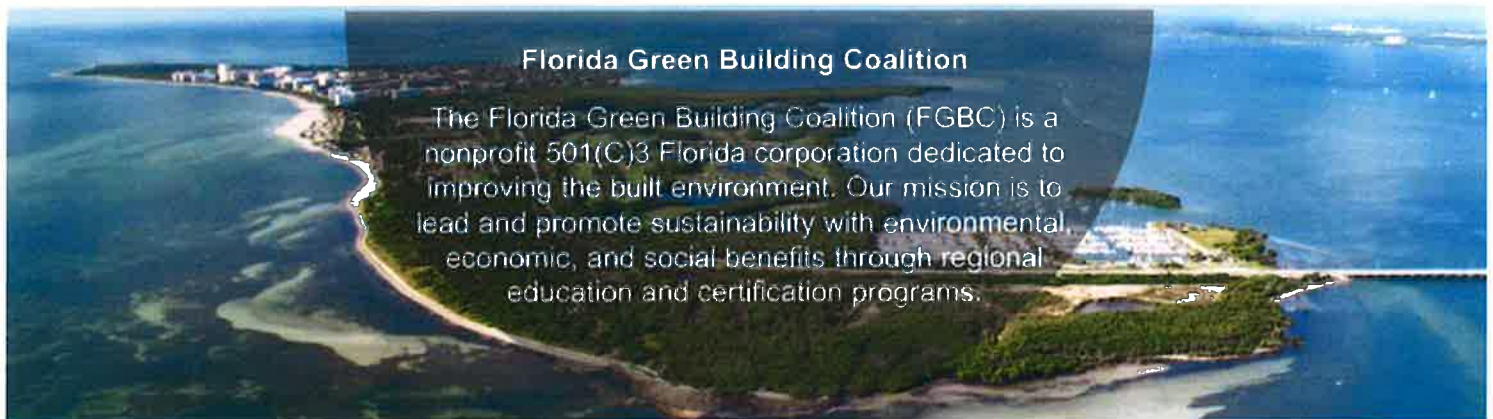
Since the Village is implementing a number of categories in our Sustainability Plan, we recommend that we dovetail those efforts and seek certification as a Green Local Government through the Florida Green Building Coalition. The fee schedule, depicted below, is very reasonable.

### Application Fee

Population < 20,000	\$3,000
Population 20,001 - 100,000	\$4,000
Population > 100,001 - 200,000	\$5,000
Population > 200,000	\$6,000



*“Providing statewide green building programs with economic and environmental benefit.”*



### Steps to Becoming A Florida Green Local Government

1. Learn about the Florida Green Local Government Standard,
2. Contact the Florida Green Building Coalition and schedule an introduction to the process,
3. Designate an office, department, or individual as Project Coordinator,
4. Submit the Registration Form along with the deposit,
5. Determine what criteria apply to the local government,
6. Conduct a local government assessment review in cooperation with departments,
7. Conduct a local government evaluation,
8. Schedule implementation meeting to outline path towards qualification,
9. Submit application and all necessary documentation to FGBC for evaluation.

All pertinent info can be found by clicking on the following link:

 <http://www.floridagreenbuilding.org/local-governments>

### Sustainable Events Protocol

There are a number of events that happen every year in Key Biscayne that attract a significant amount of people. Many of these include food and beverage services which result in massive amounts of waste. As a result, we are in the process of creating a "Sustainable Events Checklist" that will be applicable to events held in the Village.

# Strategies for Sustainable Events



In order to maximize our efforts and impacts, three main pillars will define the overall structure:

- 1. Before The Event
- 2. During The Event
- 3. After The Event



Furthermore, the platform will take into consideration critical items such as :

- **Marketing & Communications**
- **Location**
- **Transportation**
- **Food & Beverage**
- **Waste & Recycling**
- **Energy Use**
- **Participant Education**
- **Clean Up**
- **Reporting**