



# Turn Away From Plastic

SSAC PROJECT PROPOSAL

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UCF

**Sustainability  
Initiatives**

UNIVERSITY OF CENTRAL FLORIDA

## Background

The University of Central Florida is continuously progressing in ways to obtain a sustainable campus utilizing student involvement. The policies surrounding campus values have been introduced through such examples of a fresh gardening system with the Arboretum and a successful bike share program. In efforts to look for new ways to reduce campus impact, the Student Sustainability Advisory Committee proposes to phase out single-use plastic straws over a one-year period.

The University has built a long-term plan known as their Climate Action Plan, to become a more sustainable campus. To do so, UCF establishes goals to educate the student body of their impact along with researching alternative products or methods to overall reduce the carbon footprint of the campus. An additional goal is to reach a recycling rate of 75% by the year of 2020. Across the country, millions of plastic straws are used daily. Lightweight plastics can easily get into our waterways and seeing that straws and stirrers make up more than 7% of all plastic in the environment, the result is dangerous.

Plastic itself is a material that can take anywhere from 500-1000 years to decompose, so it continuously piles up with only 8% of it being recyclable. Single-use plastics such as straws threaten wildlife by ways of ingestion, entanglement, and even habitat disruption from emitted toxins. Reducing and eventually eliminating these products would only benefit UCF by increasing environmental standards on campus and improving the lifestyle of many different types of wildlife found in our waterways.

## Objectives

The overall goal of this project is to phase out single-use plastic straws over a one-year period through independent vendors on campus. To put this project in motion, we will first create

and distribute a survey to students on campus for data collection of how many students use a straw simply because it is there, or if they physically need it for personal or medical reasons. We will then conduct a public waste audit to determine the percentages of plastics found on campus that consist of single-use straws and stirrers. These two steps will help us collect and analyze the data we need to educate students on the difference they could make by not using this product.

Our first phase involves independently owned food vendors on campus only providing straws if the customer requests one. A program or flier explaining the concept of skipping the straw will stand in lieu of a straw dispenser if not already in place. While facilitating this, we will conduct research into the best alternative straw for the UCF campus with options of stainless steel, paper, or silicone. The next phase administers this research by collecting and formulating the data as new evidence should the University decide to eliminate plastic straws altogether. To finalize our project, a post-survey will be created and distributed among students to collect feedback of the reduction. It is our hope that with our efforts of phasing out plastic straws, the University can advance this project in the future to then eliminate all single-use plastic items like bags and utensils.

### Research Questions

1. What would be the benefit to the University of Central Florida and its students of reducing single-use plastics present on campus?
  - a. Long term benefits?
  - b. Short term benefits?
2. What would be the environmental benefits of reducing the presence of single-use plastics on campus?
  - a. Long term benefits?

- b. Short term benefits?
3. What is the most efficient way of removing plastics from campus?
  4. What success stories could we use as a template for our future successes?
  5. What are the negative impacts of continuing to allow single-use plastics in campus facilities?
  6. What are the benefits of conducting regular, thorough waste audits on campus?
    - a. How often should these audits occur relative to our current system?
  7. What are some sustainable alternatives to single-use plastics that would be the best to use on our campus?

## Significance

With a culture continuously based on consumption, resources from the earth are in higher demand than ever. Humans are consuming resources at an exponential level due to the evolution of mass-production technologies and inexpensive ways to deliver products. Human industries are facing the issue not over their capability to produce these products, but the inefficiency in which they are consumed. Nowadays, most of the products consumed from the food industry are fully dependent on the utilization of single-use plastics like containers, wrappers, utensils, and straws. This material has a significant short-life span and is difficult to be recycled into any other material besides landfill. Billions of plastic products are produced for single-use because of an apparent comfort and cheaper manufacturing cost, contributing to the inefficiency of the human consumption system.

The necessity for an expedited solution is crucial. Otherwise, the plastic pollution levels will continue to surge and affect every type of ecosystem, food chain, maximized landfill, and

have a direct impact on human health. Recycling reduces the need for extraction of raw material, while consuming less energy when compared to manufacturing from raw materials. But this is not the only type of solution we should have to address these consumption patterns. There is a possibility of reducing the amount of waste by trimming away unnecessary plastic products like straws, bags, and other single-use plastics that provide an opportunity for pollution.

This approach for reducing plastic waste translates directly into the significance of this issue to the UCF campus by a largely populated institution contributing to a global concern. Besides having a positive impact on the global scale, it demonstrates the type of sustainability stewardship that should be implemented in local communities and is a significant step towards the completion of UCF's sustainability goals. Promoting this type of initiative is key for maintaining the pursuit of excellence and leadership that the university aims to implant to the entire community, serving as an example of a more mindful and elevated behavior.

## Methodology

The plans of this project align with the goal to phase out single-use plastic straws over a one-year period. To do this, we must first understand the student body and their reasoning behind using a plastic straw. Our method to create and distribute a survey to collect this information will give us the result we need to best move forward in our project. Additionally, we must see and interpret the amount of waste collected from popular areas of campus like the Student Union and CFE Arena Plaza to understand the impact being made. For this reason, a waste audit will be conducted to identify and analyze the amount of single-use plastics being discarded on campus to truly see how eliminating this product could reduce emissions overall. This audit will also serve as a public education event to campaign awareness for the issue of plastic waste.

By first working with independent vendors at UCF to only provide straws at the request of the student, we can physically reduce the use of these single-use plastics on a per hand basis. At least twice during the semester, we plan to participate in tabling events outside of the Student Union to promote education and awareness to students as to why this issue is so important. By creating fun, participant-driven activities like games and quizzes, we can distribute prizes that align with our goals and mission. Many non-profit groups like Final Straw are working to make this switch nationally, and our project includes contacting them to endorse this change at the UCF campus by providing promotional items and sales we will use at our tabling sessions. With our research and implementation of this project, our goal will be met along with the establishment of a platform for future cohorts to advance upon in reducing the use of another single-use plastic item.

## Work Plan

### ***Pre-Phases***

1. Create and distribute a survey to gather data on habitual vs. necessity of straw use with students on campus
2. Conduct public waste audit/sorting as educational/awareness event
3. Connect with local and national movements to endorse promotional items and sales for student engagement

### ***Phase One***

1. Replace straw dispensers with program explaining concept of skipping the straw in independent vendor locations that do not already have one
2. Have independent food vendors only provide straws at the specific request of the customer

3. Research and identify best possible and preferred solution for alternative for future UCF use (stainless steel/paper/silicone)

### ***Phase Two***

1. Host tabling events outside the Student Union to promote awareness
2. Provide UCF research of possible alternatives for future use

### ***Post-Phases***

1. Successfully reduce single-use plastic straws within independent vendors on campus
2. Create and distribute second survey to gather data on student preference and outcome of straw reduction as semester ends
3. Create a platform for future cohorts to advance this project to focus on another single-use item (i.e. bags or utensils)

**Note:** Initially, this project was pitched to reduce/eliminate both plastic straws and bags from campus. While this team has had tremendous success making connections and securing interviews with contacts discussing plastic straws, we have not received any feedback about bags even with prompt for assistance. We have discovered that the initial pitch became too intricate with its focus on multiple plastic items in one project, and it is in our best interest as a team to concentrate on the strengths of the information we have at hand. In a group discussion and conversation with Vince Marcucci, we concluded that it is more feasible and applicable for UCF to maximize efforts on eliminating one single-use plastic product at a time. With this realization, this project can develop into a platform for future cohort members to expand upon by then focusing on such items like plastic bags, or even utensils. The proposal has been modified to reflect this change and emphasize the immediate needs of the campus.

## Literature

The sources discussed in this section pertain to the management of plastic waste, the impacts of plastic waste on the natural world, and the perceptions of waste of university students. Acknowledging the evidence that has accumulated surrounding plastic waste up until now is extremely important for any efforts made moving forward. If we are not aware of the impact of plastic on the environment, then we cannot achieve our goals as advocates for the planet. Additionally, if we are not aware of other attempts at reducing plastic waste made by our peers or their general perceptions, then we cannot hope to succeed and will surely repeat their mistakes.

Texas Tech University student housing hosted a public waste audit which engaged the students in volunteer opportunity which would also provide insight to the University of the waste produced on campus at the time.<sup>1</sup> This is just one example of a successful campaign against waste on a university campus. If there are other institutions that have accomplished such campaigns on such large scales successfully, then there is no reason for us to “reinvent the wheel” when it comes to methods of accomplishing our goals. We can also learn from any mistakes that others may have made, so as not to repeat those in the process of reaching our goals. These examples can benefit our planning and methodology and help us succeed sustainably for sustainability.

At the University of Northern British Columbia’s Prince George campus, a waste characterization study was conducted as a first step towards waste management planning and increased sustainability of the university. Through this study, they were able to determine how much waste was produced by the campus, and what kinds of waste were the most commonly found. This gave the researchers the ability to make suggestions and recommendations of how to

move forward with the university's waste management programs. If we were to conduct a similar waste characterization study or waste audit at the University of Central Florida main campus, we would discover what forms of waste are the most prevalent in certain areas of campus, and this would then provide insight to future sustainable initiatives that are brought about by either this committee or other organizations on campus.

A study conducted on the student body of Universiti Putra Malaysia used the Theory of Planned Behavior to find out what determines the plastic consumption behaviors of the students. They looked at the demographics of the students to figure out where there might be correlations with gender, level of college education, and a number of other factors. Their findings suggested that there are strong correlations between positive attitudes, behavior intentions to reduce plastic consumption of the students, as well as strong links between the knowledge of environmental issues and the attitudes towards plastic consumption. What they found led them to suggest that the theory was reliable in analyzing the behaviors of the student body, and that measuring their behaviors could "encourage their [the students'] involvement towards sustainable practice". Understanding what the behaviors of the student body of UCF is important because it could offer us insight into how students utilize plastics on campus, and thereby provide us insight on the most pertinent areas in which plastic needs to be reduced, or the ways in which we can properly educate the student body on this important issue.

*Science of the Total Environment* discusses the dynamics of pollutants that have been seen in South American estuaries. The purpose of the study was to show where pollutants, including those from plastic debris, come from and how they impact the ecosystems and the fauna that live in them. <sup>2</sup> Although they are not as abundant as they once were, Florida is still home to many estuaries that are impacted by anthropogenic effects daily. Learning about the

general trends of plastic pollutants travel through ecosystems, and subsequently through the food chain, can help us identify where we may be contributing to the problem as a University, which in turn will function as motivation and reasoning behind our efforts to remove single-use plastics from campus.

In the study in *Marine Research Bulletin*, researchers surveyed a sample of people from the Lake Erie basin to determine the public's opinions and knowledge of single-use plastic usage (centering around plastic bottles and plastic bags) and disposal methods. They found that there is a bit of enthusiasm for eliminating single-use plastic usage, especially if there are incentives for doing so.<sup>3</sup> This study presents a good example of the kind of survey we would like to conduct on the University of Central Florida campus, and it would greatly benefit us to follow their example. It also shows that people will favor the removal of plastics if there are benefits to them, rather than punishments, which will help us to devise ways to smoothly transition our campus and its students away from plastics.

*Waste Management* hosts a study that analyzes the methods that are used by various cities across the United States for reducing single-use plastic bags. They present the case that these bags are not only bad for the environment, but are also detrimental to the economy, which is not an argument that is often considered.<sup>4</sup> Although the University of Central Florida is not a town or a city, it sometimes functions like its very own city within the city of Orlando. Acknowledging the efforts by other locations across the country can help us to figure see what methods proved successful and which ones were negatively received. As stated previously, this will help us to avoid making useless mistakes and will allow us to move forward with more confidence in our stratagem. Also, acknowledging the economic benefits of removing single-use

plastics will help provide a financial incentive to the university's administration to support our efforts.

The study found in *Marine Policy* elicited information from experts in the field to find out how much plastic pollution has had an impact on wildlife.<sup>5</sup> Acknowledging the negative impacts of plastic pollution on the marine wildlife, especially because Florida is peninsula surrounded by marine life. Sea turtles are commonly referenced in discussions of the detriment of plastics on wildlife and their native habitats. *Scientific Reports* performed a study that analyzed the chances of sea turtle mortality in the presence of plastic or lack thereof.<sup>6</sup> Because sea turtles are an indicator for the negative impacts that are occurring in marine species, it is important for us to take into consideration how lessening our use of plastics will benefit those species.

Finally, we examined another study found in *Science of the Total Environment* that focused on the ways in which microplastics impact the habitat affinity and ecological niche of macroinvertebrates, including the ways in which microplastics and related chemicals make their way up the trophic levels.<sup>7</sup> Most of the fauna that are shown to be impacted by plastic pollution tend to be larger, more charismatic species. Shifting our point of focus from these more commonly thought-of species allows us to see how other species are impacted and shows us just how many ways plastic pollution can impact the environment. This only helps to bolster our campaign to end plastic use by showing how much we have impacted the world around us.

## Funding

To fully introduce and implement our project, we will need funding for the following reasons provided in the table (quantities are estimated and can be lowered as needed):

Item	Supplier	Quantity	Unit Price	Total
FinalStraw for promotion	FinalStraw	10	29.50	236.00
Reusable Straws for giveaways	Amazon	400	11.99 (set of 40)	119.90
Promotional Materials	Staples/ OfficeMax			100.00

**Funding Total:** \$455.90

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