

STUDENT ORGANIZATION SUSTAINABILITY INITIATIVE FUNDING PROPOSAL

Part I- General Information:

Name of Student Organization	Environmental Coalition
Contact/Responsible Person	Rial Tombes
Contact Office Held/Title	Vice President
Contact Email Address	rialto13@vt.edu
Contact Telephone Number	804-475-7391

Part II- Project Cost Information

Estimated Cost of this Proposal See III.C. interpolated from quote below

Estimated Savings - See III.D. interpolated from quote below

Net Cost of this Proposal =

Part III- Supporting Information

A. Please describe your sustainability initiative and attach supporting documentation.

Background:

Virginia Tech's Dining Services Program serves over 30,000 meals per day. This inherently creates a sizable portion of the university's waste. In 2010, Dining Services diverted over 300 tons of food waste from a landfill, sending it to a local composting operation. Instead of releasing harmful methane through purification (Eleazer, Odle, Wang & Barlaz, 1997), this waste was recycled into soil. Dining's composting program is successful, growing, and well received by students and the campus community. However, single use disposable waste and post-consumer waste still remain an issue in our Dining program and campus community, and still make up a great deal of waste. This is partially due to the fact that Dining Services cannot capture and properly dispose of items that leave the building, and partially because much of the waste does not have centralized disposal locations where sorting can occur. At Virginia Tech, a staggering 835, 000 polystyrene containers are sent to the landfill every year (Dulys – Nusbaum, 2011). In addition, a vast quantity of these items is made from polystyrene, a substance that could be harmful to human health (Hoet, Bruske - Hoefeld & Salata, 2004) and our environment (Marsh and Bugusu, 2007). Moreover, the recycling rate on campus sits at only 37.5% as of September 2011(Cochrane, 2011), which falls short of our long-term goals. It is evident from student behavior that geographically separating containers such as trash and recycling only promote the "path of least resistance in convenience" and poor diversion rates. The proper capture and disposal of these and other recyclable items is crucial to the growth of the waste management programs at Virginia Tech. Lastly, Dining Services and other departments cannot switch "on the go" items to compostable alternatives until these systems exist, else the programs will not be beneficial to campus sustainability. (Baldwin, 1991).

To correct this capture and disposal issue, we propose that 4 triple waste sorting stations be strategically placed inside four dining centers (see Appendix 2 and list below) as part of a campus wide composting pilot program. Proposed locations would greatly benefit from these disposal stations with three categories: composting, recycling (plastic and aluminum), and landfill disposal. The stations proposed are based upon qualitative student research on high traffic areas, as well as on staff feedback from Dining Services.

Waste Stations: The 4 waste station bins proposed will be triple stream bins with a header board for labeling. The different streams will be recycling (specifically plastic and aluminum), compost, and trash. Each stream will have a different shaped opening. This has been shown to limit contamination among the 3 different streams (Baldwin, 1991). Photos of proposed waste station bins are located in Appendix 1. Max – R (<http://www.max-r.net/>), a company that Dining Services has used for similar waste bins in the past has provided a quote for 12 waste stations, located in Appendix 3. The cost of each waste station is \$1,775 (\$1,495 for the unit and \$280 for the header board).

Locations: The proposed waste stations are to be located inside and at these places on campus (See Appendix 2 for details):

Dining Centers and Student Centers:

- Deet's Place
- DXpress
- Turner Place
- Squires Student Center (near Au Bon Pain)

Note: The locations of the containers may be changed within Dining Services according to operational needs as to make them most effective.

B. How does this initiative help to achieve the goals of the Virginia Tech Climate Action Commitment Resolution and Sustainability Plan?

The VTCAC & SP states that Dining Services' Immediate Goals are to
"Develop food waste reduction strategies

Through smaller batch cooking, going tray less in dining facilities and providing more reusable take out containers, food waste can be dramatically reduced. Reducing food waste will save money and greenhouse gas emissions."

As well as **"Compost in-edible organic wastes from all dining facilities**

Food waste and organic materials produce methane when landfilled due to improper decomposition conditions; Methane is twenty times more powerful as a greenhouse gas than carbon dioxide. Composting all organic food waste saves landfill space, reduces methane emissions, and restores soil nutrients by the application of the composted materials onto agricultural areas." (VTCAC & SP, 2009, p.76)

By installing these waste stations this initiative will help reach the goal of 50% waste reduction by 2050 set by the Virginia Tech Climate Action Commitment Resolution and Sustainability Plan (2009, p.199). These waste stations will help reach this goal by reducing the amount of post-consumer food waste and recyclable waste that is disposed as municipal solid waste.

C. What is the cost of your proposal? Please describe in adequate detail the basis for your cost estimate. The Original quote from Max – R for 12 waste stations is below. The numbers above have been interpolated from the original quote received. Please See **Appendix 3**.

D. Will your proposal produce cost savings for the University? If so, how much? Please describe in adequate detail the basis for your savings estimate.

According to the 2011 Comprehensive Waste Management Plan for Virginia Tech, municipal solid waste (MSW) disposal is the most expensive form of waste disposal. One cost associated with the disposal of MSW is the fees charged for the removal of each ton of waste. By reducing the amount of post-consumer food waste and recyclable waste that is disposed as municipal solid waste, these waste stations will produce cost savings for the university. These waste stations will also help students and employees understand where their waste is going. This awareness will help reduce campus waste cost continually over time as the community becomes more aware and educated about the life cycle of their waste. Cost savings \$1,153 (estimated 22.6 tons of Styrofoam Containers with food that were played in trash receptacles and disposed of at \$51 per ton).

E. Is this funding request an Ongoing or One-Time change (**please check one**)?

One-time

Ongoing

If ongoing funding is requested please explain how the initiative and resource needs may change in future years.

Once this project is established, several departments throughout the University will need to be involved in project maintenance based on the locations of the waste stations. Trash and recycling would be handled in a similar manner as existing collection programs. Poplar Manor Enterprises, Inc. (PME) is a local commercial company that already supports composting in several dining facilities on campus (<http://www.poplarmanorenterprises.com/>). Dining Services would include this additional composting mission at the four proposed locations by incorporating it into their existing program with PME.

E. Is funding available for this request from another source? If yes, describe the funding (source, amount, etc.)

No known funding is available for the initial costs of this project.

Part IV- Requestors/Reviewers

Evan Worrell and Rial Tombes

Nov 14, 2011

Prepared By (Name of Contact for Student Organization)

(Date)

Dennis C. Cochrane, Sustainability Program Manager, Office of Energy & Sustainability

Nov 14, 2011

Reviewed By (Name of Office of Energy and Sustainability Representative)

(Date)

Appendix 1: Pictures of Proposed Waste Station

There is no available photo for the exact product proposed. Appendix 1a shows the 3 stream waste station without and labeling. Appendix 1b shows what the waste station would look like with a header board, which is included in the pricing.

1a: Indoor Option: Oxford Triple Stream Topload Waste Station Without Header

Number of Indoor Triple Stream Waste Stations Proposed: Four

Proposed Locations:

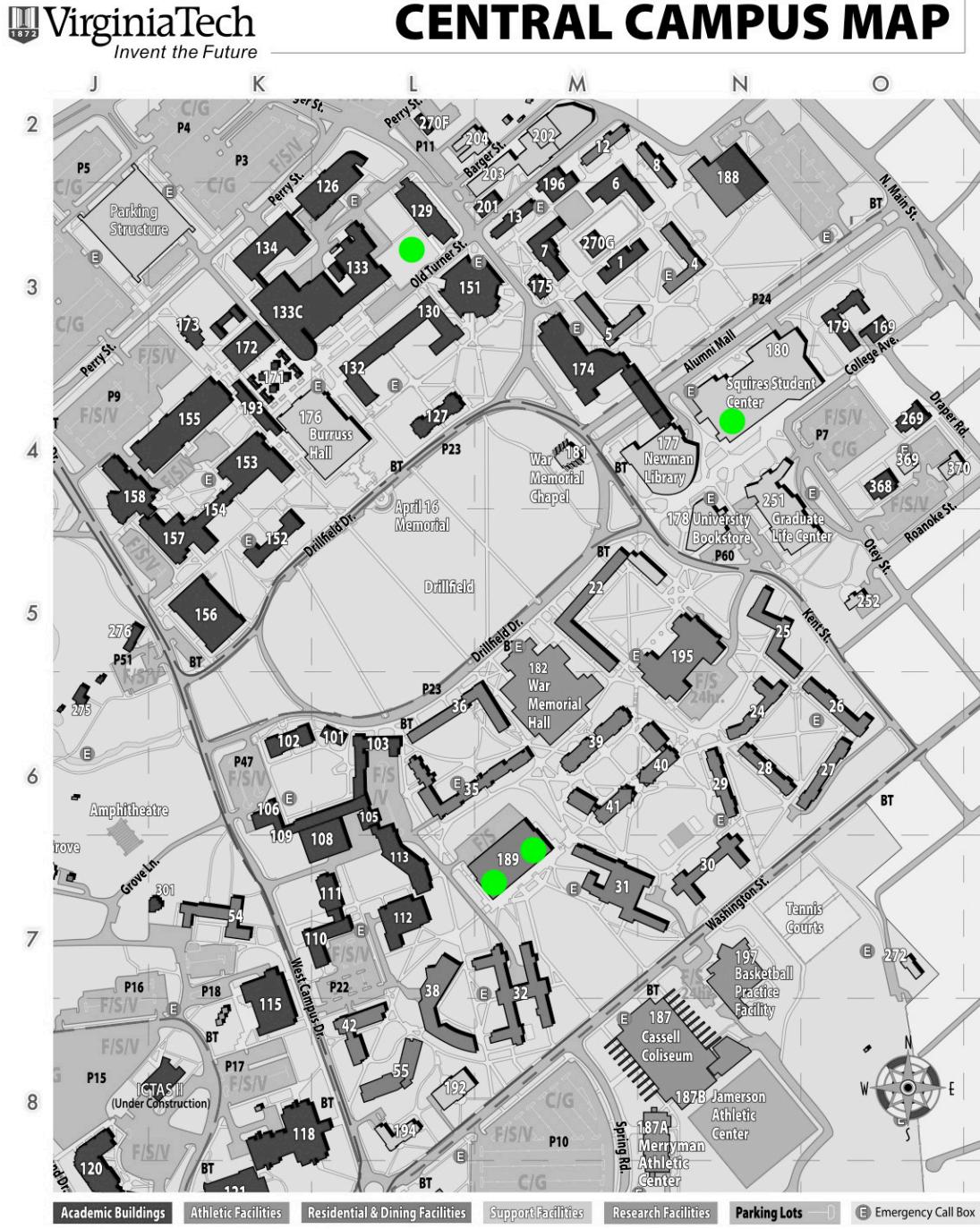
- Deet's Place
- DXpress
- Turner Place
- Squires Student Center (near Au Bon Pain)



1b: Indoor Option: Oxford Quadruple Stream Topload Waste Station With Header



Appendix 2: Campus Map of proposed waste station locations shown by green dots.



Appendix 3: Original Quote for 12 Proposed Waste Stations



W248 N5499 Executive Dr.
Sussex, WI 53089
Phone 888-868-6297
Fax 888-868-7184

ESTIMATE

DATE ESTIMATE #
10/6/2011 51267

NAME / ADDRESS

Virginia Tech University
201 Southgate Center
Mail Code 0312
Blacksburg, VA 24061-0312

Ship To

Virginia Tech University
Attn: Elena Dulys
151 New Hall West
Blacksburg, VA 24061

TERMS	REP	SM-REF-TAKEN
Net 30	7EDJH	JH-Web-MH

QTY	MR ITEM	DESCRIPTION	UNIT PRI...	TOTAL
7	100-540-032-G/A	CARMEL PANELS/GREEN ACCENTS-OXFORD 32 GALLON SQUARE TOPLOAD TRIPLE RECYCLE STATION# OPENING IDS: RESIN: (WHITE) L:(COMPOST) C:(RECYCLE) R:(TRASH) (ENGRAVE/SIGN PROOF NEEDED) (2) RESTRICTIVE OPENINGS LOCATIONS: (LEFT TOP / CENTER TOP) SHAPES: (9" CIRCLE SATURN SHAPE #7) *ENGRAVE/SIGN PROOF NEEDED#	1,495.00	10,465.00
7	66-542	(2) RESTRICTIVE OPENINGS LOCATIONS: (LEFT TOP / CENTER TOP) SHAPES: (9" CIRCLE SATURN SHAPE #7) *ENGRAVE/SIGN PROOF NEEDED#	0.00	0.00
7	66-530	GREEN- TALL HEADER BOARD FOR A TRIPLE UNIT WITH (3) 8.5 X 11 PORTRAIT STYLE DISPLAYS# (POSTER OID NOT INCLUDED)	280.00	1,960.00
5	140-470-032-G/A	CARMEL PANELS/GREEN ACCENTS-TERRA 32 GALLON TRIPLE SIDELOAD RECYCLING CENTER# OPENING IDS: RESIN: (WHITE) L:(COMPOST) C:(RECYCLE) R:(TRASH) (ENGRAVE/SIGN PROOF NEEDED) (2) RESTRICTIVE OPENINGS LOCATIONS: (LEFT PANEL/ CENTER PANEL) SHAPES: (LARGE CIRCLE SATURN SHAPE #7) *ENGRAVE/SIGN PROOF NEEDED#	1,610.00	8,050.00
5	66-542	(2) RESTRICTIVE OPENINGS LOCATIONS: (LEFT PANEL/ CENTER PANEL) SHAPES: (LARGE CIRCLE SATURN SHAPE #7) *ENGRAVE/SIGN PROOF NEEDED#	0.00	0.00
	MR-Disc	CUSTOMER DISCOUNT- (CONTINGENT ON MEETING THE PAYMENT TERMS)	-1,077.15	-1,077.15
	S/H	SHIPPING & HANDLING-(7x) (MH)	1,960.00	1,960.00

NEW ACCOUNTS UNDER \$1000 NEED TO PREPAY. 50% REQUIRED ON NEW
ACCOUNTS OVER \$1000 AND ON EXISTING ACCOUNTS OVER \$2000
100% REQUIRED ON ALL INTERNATIONAL ACCOUNTS

TOTAL \$21,357.85

My signature on this estimate verifies that I
have approved this order and I understand it
will be processed for production.

SIGNATURE _____

DATE _____

References

- Baldwin, D. (1991). Clarifying the role of shape in children's taxonomic assumption. *Journal of Experimental Child Psychology*, 54(3), 392 -416.
- Eleazer, W. E., Odle, W. S., Wang, Y. S., & Barlaz, M. (1997). Biodegradability of municipal solid waste components in laboratory-scale landfills. *Environmental Science Technology*, 31(3), 911- 917.
- Hoet, P., Bruske - Hoelfeld, I., & Salata, O. (2004). Nanoparticles – known and unknown health risks. *Journal of Nanotechnology*, 2(12).
- Marsh, K., & Bugusu, B. (2007). Food packaging—roles, materials, and environmental issues. *Journal of Food Science*, 72(3), R39 - R55.