

## STUDENT ORGANIZATION SUSTAINABILITY INITIATIVE FUNDING PROPOSAL

### Part I- General Information:

<b>Name of Student Organization</b>	Environmental Coalition
<b>Contact/Responsible Person</b>	Evan Worrell
<b>Contact Office Held/Title</b>	Member
<b>Contact Email Address</b>	evanw@vt.edu
<b>Contact Telephone Number</b>	276-733-2855

### Part II- Project Cost Information

Estimated Cost of this Proposal \$11,962.50 See III.C. interpolated from quote below

Estimated Savings - \$1,153 See III.D. interpolated from quote below

**Net Cost of this Proposal =** **\$10,809.50**

### 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 - Hoelfeld & 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 7 triple waste sorting stations be strategically placed: 2 inside Squires Student Center, 2 in the Graduate Life Center and 3 outside Dietrick Dining Hall under the overhang (see Appendix 2). 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.

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

**Signs:** After observing the effectiveness of the waste stations installed at Turner Place last year, we also propose that at every waste sorting station, new and old, have uniform informational signs to help students dispose their waste in the appropriate bin. Each waste station needs 3 signs, one for each waste stream (compost, recycling, and trash). Each sign should contain a word label (Compost, Recycling, and Landfill) and with pictures of what can go into that stream.

**Waste Stations:** Of the 7 waste station bins proposed, all will be triple stream bins. The different streams will be compost and organic waste, recycling (specifically plastic and aluminum), and landfill. Each stream will have a different shaped opening. This has been shown to limit contamination among the 3 different streams (Baldwin, 1991). We propose two different types of bins to accommodate both indoor and outdoor locations. The proposed indoor bins will have openings on the top, varied restrictive openings for each stream, and a header board above bins with labels. The proposed outdoor bins will have openings on the side keeping rainwater from entering the bins, have a sloped top to discourage littering on top of the waste stations, and will also have a flap door for each opening. The Flap Door opening will serve as a barrier to the smell that may result from these waste stations as well as serve as a barrier to critters and bugs, including bees. 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 7 waste stations, located in Appendix 3. The cost of each indoor waste station is \$1,775 (\$1,495 for the unit and \$280 for the header board and the cost for each outdoor waste station is \$1,745 (\$1,615 for the unit, \$100 for sloped top and \$30 for flap door to openings).

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.

Currently there are 16 waste stations on campus in addition to the 7 waste stations in this proposal, which comes to 23 total waste stations. Each waste station will need three signs: one for compost, one for recycling, and one for trash. For a total of 69 signs. According to Virginia Tech Printing Services, it will cost \$1 per sign to be laminated. This comes to a total of \$69.

The Original quote from Max – R for 7 waste stations is below. 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

Prepared By (Name of Contact for Student Organization)

Oct 12, 2012

(Date)

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

(Date)

NOV 19, 2012

## 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 any labeling. Appendix 1b shows what the waste station would look like with a header board, which is included in the pricing. Appendix 1c shows the proposed outdoor waste stations, but the color scheme, style and labelling can be changed as needed.

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

Number of Indoor Triple Stream Waste Stations Proposed: Four

Proposed Locations:

- Squires Student Center– Au Bon Pain (2)
- Graduate Life Center – Au Bon Pain(2)



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



1c: Outdoor option: Vail Sideload Triple Recycling Stations  
Number of Outdoor Triple Stream Waste Stations Proposed: Three  
Proposed Locations:

- Outside Dietrick Dining Center underneath overhang (3)

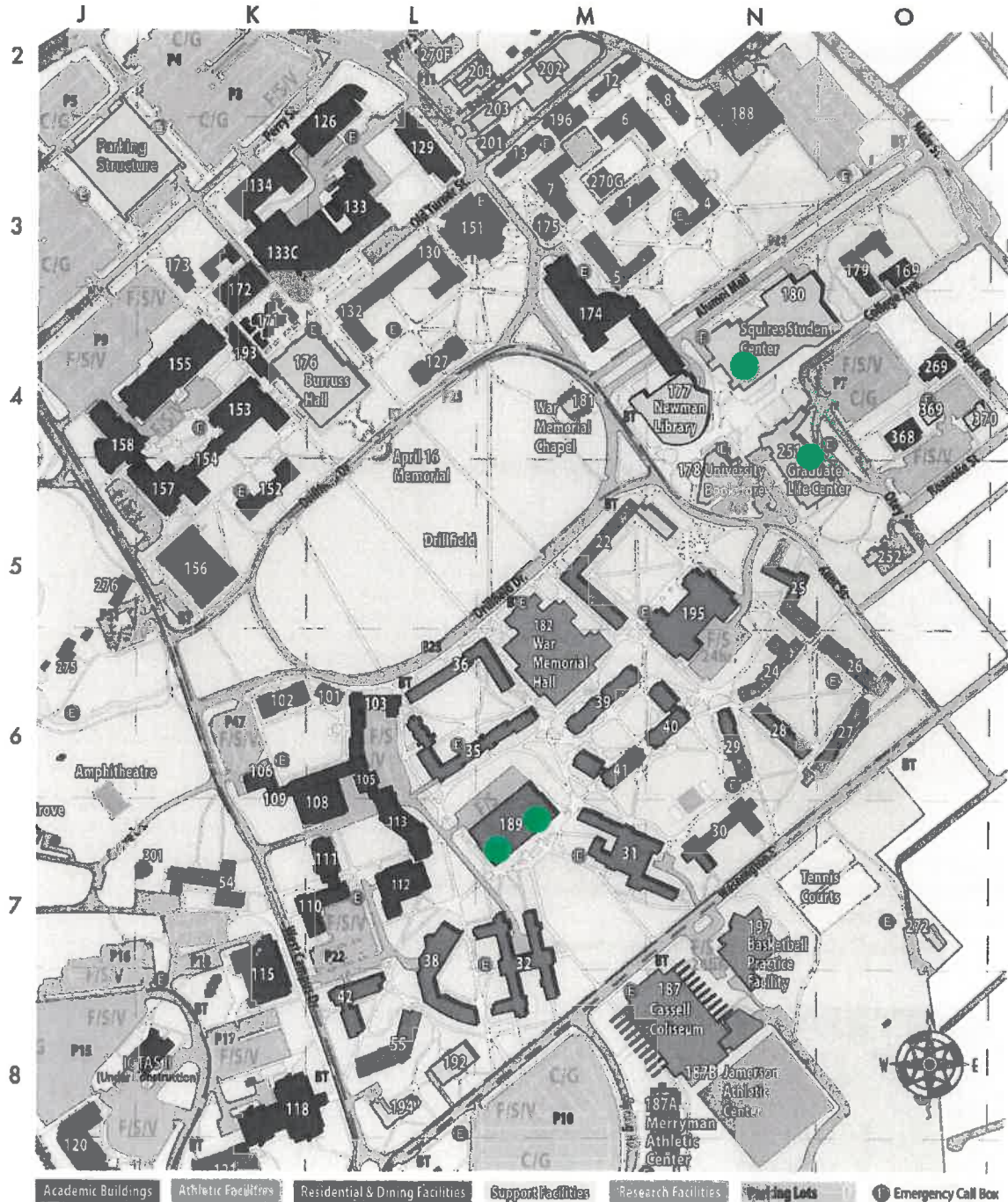




Appendix 2: Campus Map of proposed waste station locations shown by green dots.



# CENTRAL CAMPUS MAP



April 16, 2011

Map created by the Office of the Vice President for Planning and Institutional Research



**ESTIMATE**

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

DATE ESTIMATE #  
 11/14/2012 57075

**NAME / ADDRESS**  
 Virginia Poly Inst and State University  
 Accounts Payable  
 201 Southgate Center  
 Blacksburg, VA 24061

**Ship To**  
 Virginia Tech University  
 Attn: Rial Tombes  
 151 New Hall West  
 Blacksburg, VA 24061

<b>TERMS</b>	<b>REP</b>	<b>SM-REF-TAKEN</b>
Net 30	7ED1	NW-CUST-RS

QTY	MR ITEM	DESCRIPTION	UNIT PRI...	TOTAL
4	100-540-032-G/A	CARAMEL 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)	1,495.00	5,980.00
4	66-542	(2) RESTRICTIVE OPENINGS LOCATIONS: (LEFT TOP / CENTER TOP) SHAPES: (9" CIRCLE    SATURN SHAPE #7) *ENGRAVE/SIGN PROOF NEEDED*#	0.00	0.00
4	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	1,120.00
3	100-470-032-G/A	CARAMEL PANEL/GREEN ACCENT AND TOP-TRIPLE OXFORD 32 GALLON SQUARE SIDELOAD RECYCLE STATION WITH 3 OPENING IDS* OPENING IDS: RESIN: (WHITE) L:(COMPOST) ON FLAP DOOR:SEE BELOW C:(RECYCLE) R:(TRASH) (ENGRAVE/SIGN PROOF NEEDED)	1,615.00	4,845.00
3	66-122	REVERSE VAIL TOP FOR A TRIPLE UNIT: SLOPES DOWN FROM FRONT TO BACK#	100.00	300.00
3	66-543	(3) RESTRICTIVE OPENINGS LOCATIONS: (L/C/R) SHAPES: (FLAP DOOR  TWO 4 INCH CIRCLES  STANDARD) *ENGRAVE/SIGN PROOF NEEDED*#	0.00	0.00

100% PREPAYMENT IS REQUIRED ON ALL NEW ACCOUNTS AND INTERNATIONAL ACCOUNTS.  
 50% PREPAY IS REQUIRED ON EXISTING ACCOUNTS OVER \$2000  
 PROGRESS BILLING IS REQUIRED ON ANY ORDER OVER \$20,000.

**TOTAL**

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

SIGNATURE \_\_\_\_\_  
 DATE \_\_\_\_\_



# ESTIMATE

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

DATE ESTIMATE #  
 11/14/2012 57075

**NAME / ADDRESS**

Virginia Poly Inst and State University  
 Accounts Payable  
 201 Southgate Center  
 Blacksburg, VA 24061

**Ship To**

Virginia Tech University  
 Attn: Rial Tombes  
 151 New Hall West  
 Blacksburg, VA 24061

TERMS	REP	SM-REF-TAKEN
Net 30	7ED1	NW-CUST-RS

QTY	MR ITEM	DESCRIPTION	UNIT PRI...	TOTAL
3	55-611	(1) ENGRAVED FLAP DOOR ENGRAVING: (COMPOST) RESIN: (WHITE) LOCATION: (P1) *ENGRAVE/SIGN PROOF NEEDED*#	30.00	90.00
	MR-Disc	CUSTOMER DISCOUNT-(CONTINGENT ON MEETING THE PAYMENT TERMS)FALL SALE	-1,233.50	-1,233.50
	S/H	SHIPPING & HANDLING-3X RS	861.00	861.00

100% PREPAYMENT IS REQUIRED ON ALL NEW ACCOUNTS AND INTERNATIONAL ACCOUNTS.  
 50% PREPAY IS REQUIRED ON EXISTING ACCOUNTS OVER \$2000  
 PROGRESS BILLING IS REQUIRED ON ANY ORDER OVER \$20,000.

**TOTAL \$11,962.50**

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

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_