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North D Compost Pilot Semester Report

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North D Compost Pilot

Semester Review



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Abstract

Following the completion of a 14-week-long residential compost pilot program in North Apartment D at the University of Massachusetts Amherst (UMA), this review summarizes the proposition, implementation, and operation of the project. The success of this pilot provides the framework for the expansion of residential composting at UMass Amherst, resulting in higher trash diversion rates from residence halls, and encouraging students to reduce their environmental footprint both on and off campus. The demonstrated success for this pilot program and upcoming expanded pilot provides further justification for expansion across residential life, other University departments, or other institutions to participate in waste-reduction initiatives. The program also highlights the continued commitment by students, faculty, and staff to create a more sustainable UMass.

Background



North Apartments Proposal Creation & Approval Process

The Sustainability Innovation and Engagement Fund (SIEF) provides funding to sustainability-related projects proposed by students, faculty, or staff. During the fall 2014 application submission process, Jordan Chan, Student Government Association (SGA) Sustainability Secretary and Waste and Recycling Fellow, submitted a proposal to implement a composting pilot in North Apartment D. Chan selected this residence hall as a pilot after reviewing the results of the Eco-Rep trash sort conducted on October 21st, 2014. The results of the trash sort, compiled by Eco-Rep Program Manager Kevin Hollerbach, determined that approximately 27% of the trash stream from North Apartments was compostable food waste. As a resident of the building, Chan felt that

Eco-Rep Trash Sort 10/21/14 students in the building were amenable to, and interested in composting. In a preliminary survey of residents, 75% of students indicated that they would be interested in this program, if provided with appropriate materials and education.

The proposal was then approved by the Student Sustainability Steering Committee (SSC) on November 18th, 2014. The Chancellor's Sustainability Committee, composed of key University faculty and staff including Campus Sustainability Manager Ezra Small and Director of Academic Sustainability Programs Craig Nicolson, provided final approval and fund allocation of the proposals. The North Apartments Pilot Compost proposal was partially funded by the subcommittee on May 20th, 2015, leading to some changes in the initially proposed materials necessary for the pilot.

In order for the proposal to receive approval from the Office of Waste Management, the Director, John Pepi expressed the importance of improving the existing trash and waste infrastructure in the building prior to implementing a compost program. The Recycling in Residence Halls Committee was developed in fall 2014, as part of a broader campus-wide effort to increase recycling rates in residential areas on campus. The Committee was comprised of faculty, staff, and students from Residential Life, the Office of Waste Management, Sustainable UMass, and the Student Government Association. The Committee fostered increased data collection from targeted residential halls on campus, representing one building from each of the five residential areas on campus. This data allowed for the development of experimental

initiatives including increased signage, bins, and educational engagement initiatives. In North D, signage on bulletin boards on each floor provided helpful information regarding appropriate recyclable materials, recycling myths, and recycling data and interesting facts. In the waste room, enhanced signage was installed to make the recycling bins more visible. Individual single-stream recycling guidelines were distributed to each of the apartments. Ultimately, these led to improvements in the existing waste infrastructure in the building, and increased recycling rates that provided the framework necessary for the implementation of this pilot compost program.

Sustainability Coordinator for Residential Life

The newly created graduate Sustainability Coordinator for Residential Life position was adopted on April 23rd, 2015, aimed to assist in the development and implementation of sustainability initiatives across all five residential areas at UMA. Kevin Hollerbach was appointed the position. The position description included the management of the North Compost pilot, as a residence hall sustainability effort to determine the viability of expanding compost initiatives across residence halls on campus. Throughout the 2014-2015 academic year, Jordan and Kevin worked closely to transition the project to a Residential Life program.

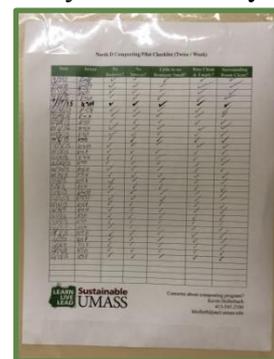
The goal of the compost pilot was to increase the diversion of recyclable or compostable material away from the trash stream. This effort was particularly relevant to residence halls. According to data from the UMass Office of Waste Management (OWM), the recycling rate from the residence halls is approximately around 20-25%, relatively low compared to the overall campus recycling rate of 56%. In addition to reducing waste, the pilot served as an educational opportunity for residents. The North Apartments function as a transitional living community for students to prepare for life off-campus and beyond the University system. To leverage this transitional living community, the pilot compost program strives to encourage sustainable behaviors on campus to resonate with students beyond their time at the University.

Methods, Materials, & Implementation

Stakeholder Engagement

Office of Waste Management: The first imperative step to the success of the pilot was to engage and receive approval from the Office of Waste Management (OWM). John Pepi, Director of OWM, worked closely with Jordan to secure two 32-gallon rolling totes for the collection of students' compost in the waste room. Additionally, Mike DuFresne, Head of Grounds, added North D to OWM's compost pickup route, allowing for pickup every Monday and Thursday throughout the semester. The need for additional pickup days would be revisited depending on the volume of compost collected.

Environmental Health & Safety (EH&S): Due to previous pest-related issues with compost in residence halls, it was essential to connect with Environmental Health and Safety (EH&S) prior to the implementation of the project. Larry Davis, Environmental Health Services Manager, met with Kevin Hollerbach and Campus Sustainability Manager Ezra Small, to address any concerns. Davis suggested frequent checks of the North D waste room, visible contact information for those in



Completed EH&S checklist hung in North D waste room

charge of the program in case of any issues, and a checklist to be displayed in the waste room to ensure that no pests or smells were present, and that the room remained clean. Any issues with the area would be reported to Davis or other EH&S staff immediately. Because the food waste and compostable material was simply being diverted from where it was already present in the trash containers, the pilot was officially supported by EH&S. Collaboration with EH&S ensured the program had contingency strategies in the event of any serious issues.

Residential Life: Buy-in from within Residential Life itself was the final barrier to implementation. Kevin met with Aida Claudio, Operations Manager for Northeast, Sylvan, and North, along with Abed Jaradat, North Apartments Complex Coordinator on August 26th, 2015. Aida agreed to inform the building maintenance staff about the program, and request the compost bins were brought curbside on pickup days. Abed emailed all incoming residents and asked them to participate in the pilot and invited Kevin to attend the North D floor meetings to inform students of the program.

Materials

Material	Quantity	Cost
BioBag© 3 gallon compostable bags (rolls of 25)	52	\$240.76
BioBag© compost bins with lid	48	\$460.35
Lamination pouches for educational material	100	\$41.81
Industrial Scale	1	\$51.99

Materials for the pilot were purchased on August 17th, 2015. The list of materials and pricing can be seen in the table above. In addition to the 32 gallon bins provided at no cost by



**32 Gallon Bin
Provided by OWM**

OWM for the waste room, 48-3.4 gallon dark green recycling bins were provided for bulky compostable containers including compostable clamshell containers, coffee cups, soup containers, and greasy pizza boxes that students frequently receive from campus eateries. Students were encouraged to empty all food waste into the smaller, lined, BioBag© bin, and utilize the 3.4 gallon bins for the containers. Students were provided rolls of 25 BioBag© compostable bin liners, allowing for the bags to be brought down twice every week for the semester to coincide with the twice-per-week pickup schedule. Students were encouraged to contact Kevin if their supply of bags ran out. Educational material was designed to be simple and easy to follow. Signs combined visual information, in the form of pictures of compostable items, with a list of all acceptable materials, and a similar list of items that do not belong in the compost stream. In addition to signs present in the apartments, signage in the lobby of the building directed students to the “trash room” were updated to say “trash, recycling, and compost room”. Within the waste room itself, a “compost only” sign, with pictures and an arrow, was hung above the

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**Bin and bag setup placed in apartment
kitchens 9/1/15**

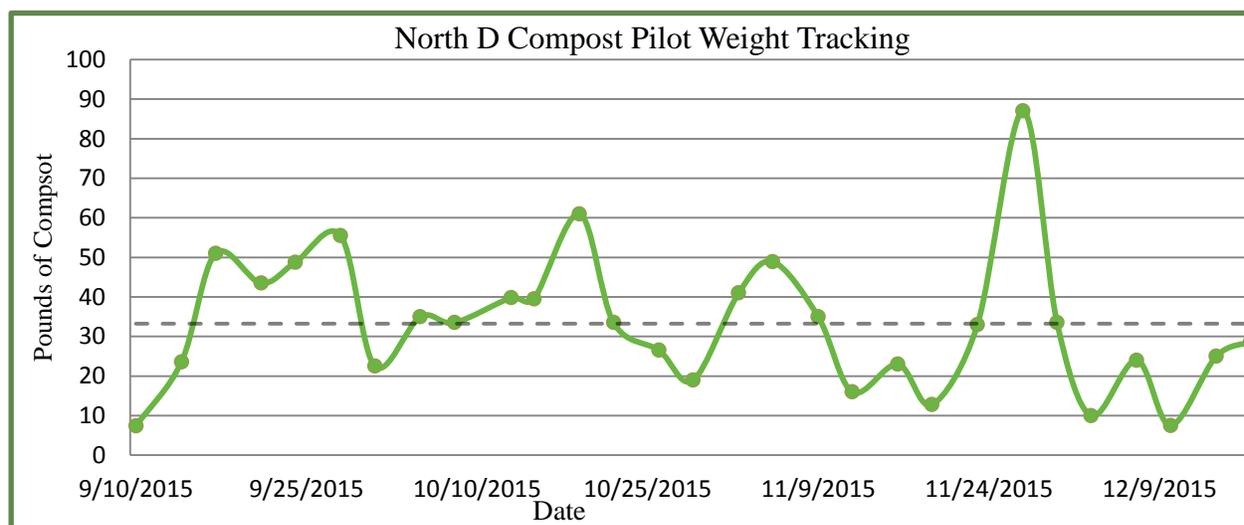
compost bins. The lids of the bins were to remain closed, discouraging students from contaminating the compost stream. The lids have explicit labeled “Food Waste Only”, to further ensure that only compostable material was placed in the bins.

Floor meetings were held in the building on September 7th, 2015. Ezekiel Babagario, along with Kevin, welcomed students and informed them of the new compost program. According to Ezekiel, floor-meeting attendance was higher than usual, providing ample opportunity to educate the residents about the program and changes to existing waste infrastructure. Feedback was strictly positive and students asked thoughtful questions about the system.

In addition to improved building infrastructure, an industrial scale was purchased with the intent to track progress. Toters were weighed and recorded on pickup days before trucks arrived to ensure accurate measurements. Tare weights of toters were subtracted from final weights to assure compost-only weights were recorded.

Results

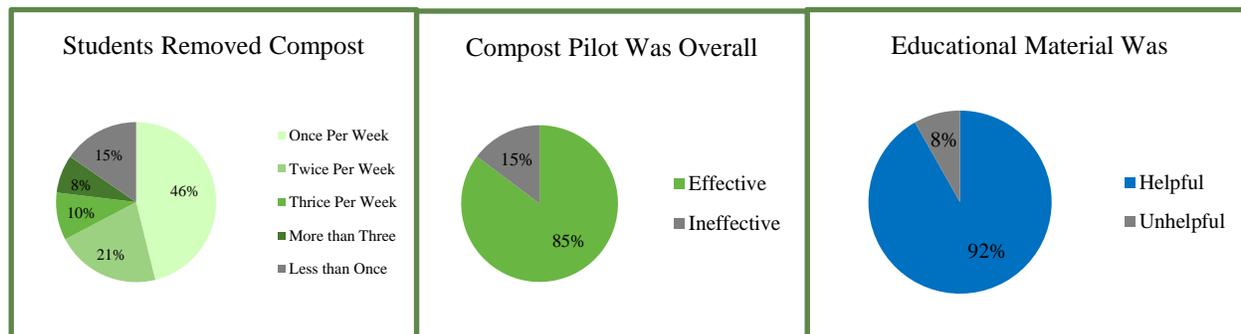
During the first phase of the pilot implementation from September 10th to December 17th, the North D compost pilot collected 965 pounds of compostable material, which would have otherwise been sent to the landfill or incinerator, resulting in an average of 33 pounds per week. The most clearly outlying date (11/27) is due to food waste from students’ Thanksgiving dinners.



Week-to-Week Weight Totals for Compost in North D. Outlier is Thanksgiving.

In addition to tracking weights, a post-pilot survey was conducted. The survey distributed and promoted through an email sent to all residents, in addition to tabling in the lobby of the building. A total of 61 responses out of 188 total residents were collected, which is equal to a 32% response rate. 78% of the survey responders reported that they had participated in the pilot. Out of the 48 residents who reported using the pilot, 44 of them, or 92%, took out their compost once per week or more, which was publicized as the ideal timeframe to limit pests and smells. Only 9 responders felt that the pilot was ineffective, while the remaining 85% said that the pilot was “somewhat effective”, “effective”, or “very effective”. Only 3 responders felt that the educational material provided for the pilot were unhelpful. 89% of responders felt more familiar with the campus-wide composting system as a result of the North D pilot. In the two open-ended

questions provided, students voiced concerns regarding the inconvenience of having two separate composting bins, one for food waste and one for bulky containers.



Sample Graphed Results from North D Composting Pilot Survey

Challenges

From the management side of the pilot, there were only a few small glitches in the program. Due to the timing of University holidays, compost could not be picked up on Mondays and Thursdays every week during the semester. In these circumstances (Columbus Day and Thanksgiving), alternate pickup times had to be scheduled with OWM to prevent any EH&S concerns that could arise with long term compost storage in the waste room. Although scheduling proved challenging during unusual weekdays, the twice-per-week pickup was flawless for the amount of material collected each week.

Additional minor concerns included timing discrepancies for pickups by OWM staff. Two days of weight tracking were forced to be estimated due to early pickup of the bins. One additional weight was estimated due to sickness. The timing of pickups versus timing of weight recording has since been worked out with OWM, and this is not expected to be a continued concern for an expansion of the program.

Overall, it is evident that the pilot was successful. The minor complications with the program provided necessary feedback for adjustment, and the pilot served as an ideal program to determine the viability of a larger residential composting system. While the original expansion plan was set for fall of 2016, the expansion was expedited for spring of 2016 to coincide with the RecycleMania competition and to prepare for possible future expansions being proposed in The Commonwealth Honors College and North Village.

Discussion & Looking Ahead

External Assistance for the Expansion of the North Apartments Pilot Program

The Center for Eco-Technology (CET) initiated the RecyclingWorks of Massachusetts recycling assistance program in 2011. In October 2012 the program was supported by Department of Environmental Protection (DEP). The program provides assistance to businesses and institutions within the commonwealth to start or expand existing programs and limit landfill waste throughout the state. Cate Foley of CET was contacted on October 19th, 2015 regarding assistance with expanding the North composting pilot. The project was referred to Jamie Cahillane of CET who toured North D and learned about the active pilot compost system in the



Educational stickers produced for the expansion

building. Once the project was approved for funding for expansion, Joshua Cook of the DEP and Doug Hill of EcoVision Environmental were instrumental in coordinating the orders for comparable bins and bags for the expansion of the program, as well as the production of stickers describing all of the information about compostable materials to be attached to the bins.

To ensure consistency for the expansion, bins, bags, and stickers were ordered for all four North buildings rather than for only the three remaining buildings. The new bins arrived on December 15th and are expected to be installed by January 17th. The

bins are currently being stored in a Facilities Operations storage location within North D to ease the installation process.

Potential barriers to the residential composting expansion include coordination with OWM, EH&S, and Residence Education staff. The Office of Waste management has committed to adding North A, B, and C to their existing compost pickup route. EH&S has been notified of the expansion, and additional checklists for each building will be produced to address and reduce health and safety concerns in these buildings. Finally, North Apartments Complex Coordinator Abed Jaradat has been extremely supportive throughout the entire process. Additional floor meetings for all four North Apartment buildings will be scheduled for the first week of the spring semester. This will be essential to emphasize the importance and details of the project.

Next Steps

On Campus Infrastructure Improvements

The Office of Waste Management is currently seeking bids for on-board truck scales. These scales will allow for enhanced and targeted tracking of waste streams across areas, departments, and even buildings. With a successful proposal and implementation, these scales may be active by summer of 2016, and can be used for tracking each waste stream from buildings with residential composting to gain an even broader sense of the exact effects that residential composting is having on trash and recycling.

Nationwide Competition Participation

At many collegiate institutions across the country, RecycleMania provides additional motivation for students to actively participate in recycling and composting systems. RecycleMania is a competition and benchmarking tool for the waste streams of colleges and Universities. The competition may be used on campuses to foster competitiveness to drive recycling across residential areas. Residential composting will further assist the University's reported recycling and composting rates, and will ultimately reduce waste sent to the landfill or incinerator.

Although UMass has not participated in the RecycleMania competition in eight years, this year UMass has signed-on to participate in the 2016 RecycleMania benchmark division. The

University will report all campus-wide waste data, and are ranked against comparable schools throughout the nation. UMass' participation in RecycleMania further challenges the campus to develop and implement broader waste reduction strategies to encourage sustainable behavior.

Looking Ahead

The North Apartments Pilot program, including the expansion in January 2016, will demonstrate the potential for expansion of compost initiatives across residential halls on campus, and complement the existing MinuteRiders in-office compost program. These are part of a broader effort as UMass strives to become a zero-waste campus, demonstrating the momentum and campus-wide support of waste reduction initiatives that engage the campus community.