

# The Feasibility of Industrial Composting in Morgan's Grind Coffee Shop

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## Background

Morgan's Grind, located in the Morgan Library, produces compostable materials and offers industrially compostable products but no composting facilities. In this study, we explored the logistical aspects of introducing a tri-compartment composting bin at Morgan's Grind.



Coffee grounds compost well and make good fertilizer.

## Method

We interviewed campus experts about industrial composting facilities and the hypothetical process and implications of installing composting in a high-traffic, limited-space area such as Morgan's Grind.

We based our calculations on implementing a tri-compartment waste bin, such as can be seen in Alison Café, which has been shown to eliminate the most cross-contamination between streams.

## Results/Analysis

### Upfront Costs of a bin:

- Installation cost of unit: \$2,000
- Maintenance costs: \$0

### Annual Costs of products:

- On average, Eco-Products are twice as expensive as traditional products (though MG is already doing this.)
- Just over \$21,000 per year to buy compostable cold and hot cups
  - Hot lids & sleeves: add \$14,600
  - Cold lids & straws: add \$7,700
- Though Morgan's Grind has the space and operating hours to turn over more food than any of the other retail coffee locations here on campus, more than 50% of its sales are drinks.



- 12 oz. Eco-Products Cold Cup
- Corn-based bioplastic
- Appx. 85,000 sold in past year
- Lid, hot sleeve



- 12 oz. Eco-Products Hot Cup
- Made 100% from renewable resources
- Paper, corn-based bioplastic
- Non-recyclable

August 2014-July 2015: Morgan's Grind used 169,814 hot and cold cups; 100% went to landfill

A correctly-composted cup will emit **21 to 310 times less** greenhouse gas than one thrown in a landfill. These gases are methane and nitrous oxide, which are far more potent than carbon dioxide.



Alison Café composting bins, which have proven to eliminate the most contamination from the waste streams.



In the past year, Morgan's Grind used almost 2 tons of coffee beans (estimate)



Decomposition Time of a Compostable Product in an Anaerobic Landfill: 100 years  
Decomposition Time of a Compostable Product in an Aerobic Compost: 40-180 days

Morgan's Grind would not compost on-site. Instead they would use a 3<sup>rd</sup>-party organization, likely the local business A-1 Organics, to reduce the amount of time spent on processing and management.

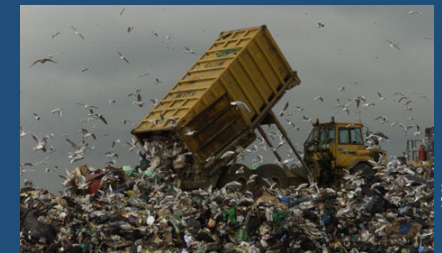
- Landfill tipping fees saved, assuming 50% hot and 50% cold cups sold (85,000 each): \$60/year (this figure excludes other compostable items low in weight, such as straws)

## Conclusions

Industrial composting would most likely be feasible, but expensive, to install in Morgan's Grind.

The sheer amount of coffee grounds used per year makes it difficult to handle, but this project would sharply reduce the emissions of potent greenhouse gases CH<sub>4</sub> and N<sub>2</sub>O from coffee grounds and compostable cups decomposing in a landfill.

Decreasing the number of single-use products that students consume each day on campus will help reduce the cost of managing this waste.



Landfill tipping

## Acknowledgments & References

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