THE ULTIMATE RECYCLING PROGRAM

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PROBLEM & PLAN

At Ultimate Software headquarters in Weston, FL, many of the buildings have recycling bins in the break rooms, but there are no dumpsters for the collection of recyclables. Thus, our goal is to **reduce the carbon footprint of Ultimate Software through a recycling program**. Specifically, an indoor recycling bin, marked with a blue bag, will be placed in every break room, and recycling collection will be provided to all buildings.

COST CALCULATIONS

Cost for Blue Recycling Bags

$$\frac{\$7.69}{45\ blue\ bags} * \frac{1\ bag}{break\ room} * 41\ break\ rooms * \frac{1\ bag}{wk} * \frac{52\ wks}{yr} = \$336.31$$

Cost for Indoor Recycling Bins

1. $41\ break\ rooms - 26\ with\ recycling\ bins = 15\ without\ recycling\ bins$
2. $\frac{\$13.75}{recycling\ bin} * \frac{1\ bin}{break\ room} * 15\ break\ rooms = \$206.25$

Cost for Recycling Services

1. Republic Services: $\frac{\$134.52\ weekly\ recycling\ service}{month} * \frac{12\ months}{yr} * 9\ buildings = \$14,528.16$
2. Waste Management: $\frac{\$145\ weekly\ recycling\ service}{month} * \frac{12\ months}{yr} * 3\ buildings = \$5,220$
3. $\$14,528.16\ for\ Republic\ Services + \$5,220\ for\ Waste\ Management = \$19,748.16$

CARBON FOOTPRINT CALCULATIONS

1. **Took trash samples from dumpsters to determine a waste profile.**

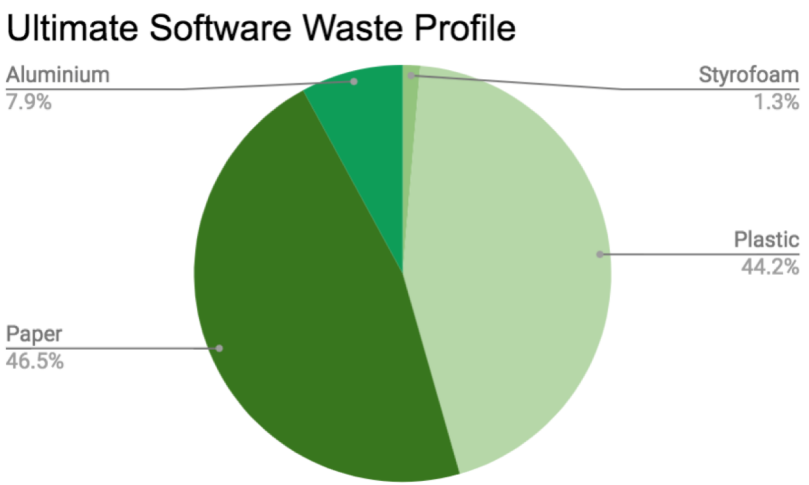
$$\frac{179712\ in^3\ dumpster}{96.69\ in^3\ sample} * 75\%\ capacity * 12\ dumpsters = 16{,}727\ samples/wk$$

2. **Estimated waste production for all dumpsters and calculated carbon emissions using kilograms of carbon dioxide per kilogram of material.**
   - Styrofoam: $\frac{11.25\ g}{sample} * \frac{1\ kg}{1000\ g} * \frac{16{,}727\ samples}{wk} * \frac{7.84\ kg\ CO_2}{1\ kg} = 1{,}475.41\ kgs\ of CO_2/wk$
   - Plastic: $\frac{173.84\ g}{sample} * \frac{1\ kg}{1000\ g} * \frac{16{,}727\ samples}{wk} * \frac{6\ kg\ CO_2}{1\ kg} = 17{,}465.98\ kgs\ of CO_2/wk$
   - Paper: $\frac{176\ g}{sample} * \frac{1\ kg}{1000\ g} * \frac{16{,}727\ samples}{wk} * \frac{5.03\ kg\ CO_2}{1\ kg} = 14{,}812.96\ kgs\ of CO_2/wk$
   - Aluminum: $\frac{30\ g}{sample} * \frac{1\ kg}{1000\ g} * \frac{16{,}727\ samples}{wk} * \frac{12\ kg\ CO_2}{1\ kg} = 6{,}022.08\ kgs\ of CO_2/wk$
3. **Extrapolated for carbon emissions over the course of a year.**

$$\frac{2.205\ lbs}{1\ kg} * \frac{52\ wks}{year} * (1{,}475.41 + 17{,}465.98 + 14{,}812.96 + 6{,}022.08)\ {}^{kgs}/_{wk} = 4{,}560{,}765\ lbs\ of\ CO_2/yr$$

4. **Calculated the prevent carbon emissions from recycling.**

$$\frac{2.205\ lbs}{1\ kg} * \frac{52\ wks}{yr} * (37.38\% * 17{,}465.98 + 100\% * 6{,}022.08)\ {}^{kgs}/_{wk} = 1{,}439{,}081.99\ lbs\ of\ CO_2/yr$$



Recycling would prevent 1,449,082 lbs of CO_2 and reduce Ultimate's carbon footprint from waste by 31.55% for less than $20,000 per year!

This is equivalent to the carbon sequestered by 1,706,810 acres of U.S. forest, an area is larger than the Florida Everglades, in one year!

CO-BENEFITS

- Millennials consider a company's environmental commitments when deciding where to work. Having a recycling program could help Ultimate Software attract young minds.
- Ultimate can join many other companies in their efforts to go green.

CURRENT STATUS

- Presented plan to Ultimate Software Director of Campus Operations
- Wrote documentation for announcing change to employees and training maintenance crew
- Currently awaiting the purchase of the recycling dumpsters, the additional indoor bins, and the blue recycling bags