



## Lake County School District Waste Assessment

Prepared by: Lake County High School DOOR Program Green Team with Cloud City Conservation Center and Youth Culture Works

March 12, 2015

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# SUMMARY

## Objective

Our objective was for student-led teams to investigate the waste stream in Lake County schools in order to determine 1) what and how much is being thrown away and recycled and 2) potential options for reducing waste and improving environmental responsibility.

## Methods

Students gathered physical data during waste audits, and learned about waste, materials and food operations through interviews with school district staff. Waste audits were conducted at three schools: Lake County High School (3/03/15), Lake County Intermediate School (2/26/15), and West Park Elementary (2/24/15). Interviews were conducted with custodial staff, Custodial Manager Eva Mascarenas and Food Service Director Julie Merle. Transportation Manager Joyce LaCome provided recycling data. Waste audits include the following activities:

1. Collect trash bags from different sources (cafeteria/classroom). Collect enough to get a representative sample, in most cases this is 10-15 bags. For example, at West Park students sorted 75 pounds.
2. Sort bags into three categories: 'could be recycled,' 'could be composted' and 'actual landfill.'
3. Record contents of each category.
4. Weigh bags.
5. Multiply by number of collections, days and weeks (provided by custodial staff) to get pounds per week and per year. Calculate waste diversion rates and potential waste diversion rates.

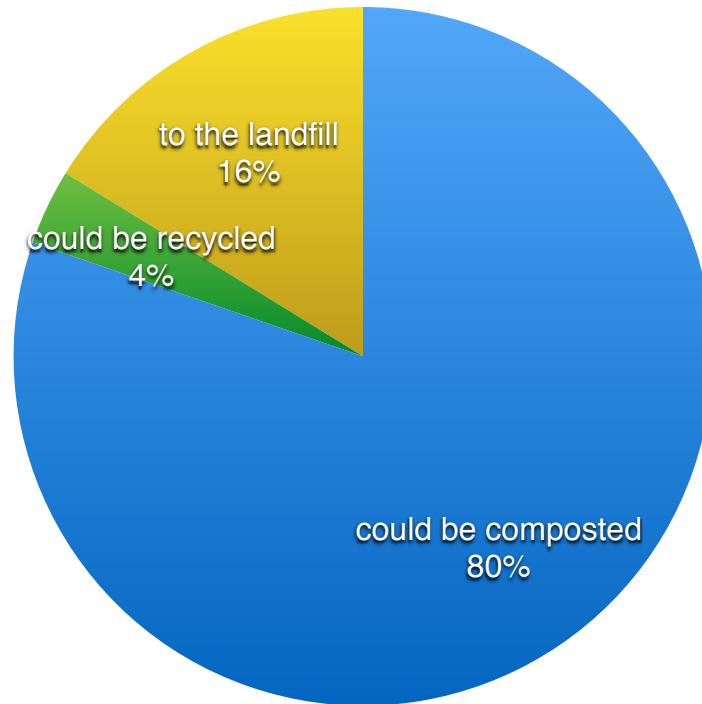
|                             |   |  |
|-----------------------------|---|--|
| <i>Waste Diversion Rate</i> | = | <u>pounds diverted from the landfill (recycled and composted)</u><br>total pounds in the waste stream (recycled, composted and sent to the landfill) |
|-----------------------------|---|--|

## Waste Diversion Rate Summary

| School                          | Recycled (lbs) reported by the Transportation Department | Total Waste Stream (lbs) | Waste Diversion Rate | Waste Diversion Rate - With More Attention to Recycling | Waste Diversion Rate - With Compost |
|---------------------------------|--|--------------------------|----------------------|---|-------------------------------------|
| West Park Elementary            | 4888   | 41,403                   | 11%                  | 13%   | 89%                                 |
| Lake County Intermediate School | 6749   | 40,937                   | 16%                  | 20%   | 83%                                 |
| Lake County High School         | 11708  | 37,602                   | 29%                  | 32%   | 92%                                 |
| <b>Total</b>                    | <b>23,345</b>  | <b>119,942</b>           | <b>18%</b>           | <b>21%</b>  | <b>88%</b>                          |

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**Total Waste Stream - All Three Schools**



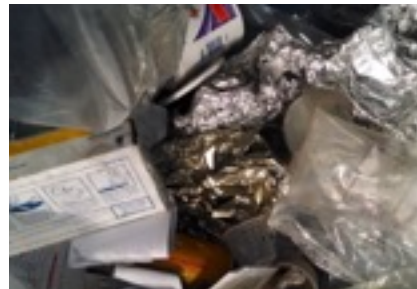
**80% Could Be Composted:**

- all food ((leftover burritos, spaghetti, bread, salad)
- paper towels, napkins, tissues



**4% Could Be Recycled**

- plastic containers
- tin foil
- paper-board
- paper



**16% To the Landfill**

- milk cartons
- styrofoam
- utensils
- wrappers
- hot cups



## RESULTS BY SCHOOL

### West Park Elementary Waste Audit



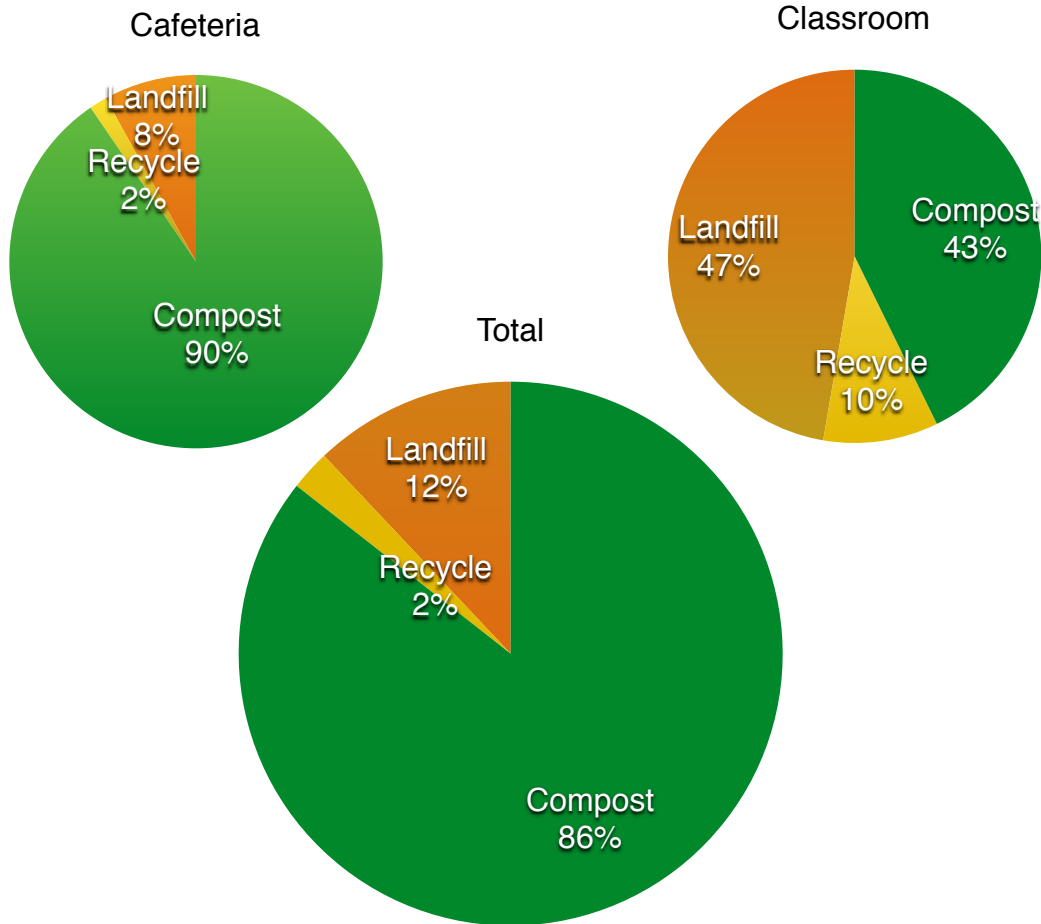
(Antonio Rivera, Stephanie Puebla, Marilyn Propernick, Jorge Moreno, Tommy Casias, Eva Mascarenas and Lynne Westerfield)

|                 | <b>Cafeteria Waste (lbs)</b> | <b>Classroom Waste (lbs)</b> | <b>Total (lbs)</b> |
|-----------------|------------------------------|------------------------------|--------------------|
| <b>Compost</b>  | 33632                        | 1803                         | 35434              |
| <b>Recycle</b>  | 567                          | 420                          | 987                |
| <b>Landfill</b> | 2987                         | 1995                         | 4982               |
| <b>Total</b>    | 37186                        | 4218                         | 41403              |

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## LAKE COUNTY SCHOOL DISTRICT WASTE ASSESSMENT - MARCH 2015



### Top Findings:

1. Most of what West Park throws away is organic matter. Eighty-five percent of all trash (by weight) was composed of compostable items, mainly lunch food and some paper towels and tissue.

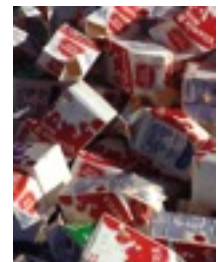
*Over the course of the school-year, West Park produces 35,434 pounds of compost. If we compost these items we will reduce **80,995 pounds of carbon** from the earth's atmosphere annually.*



2. West Park is recycling! Good news, only 2% of all trash could have been recycled. This means that West Park custodial staff, students and teachers are doing an excellent job of recycling.

3. Milk Cartons are a problem. By volume, 30% of all trash was milk cartons. These can currently not be recycled under our present arrangement with the County and Waste Management. We'll keep an eye out for changing guidelines.

4. Most of the trash is not trash. Only 12% of all items thrown away were actually meant for the landfill: chip wrappers, styrofoam, straws, plastic film.



## LAKE COUNTY SCHOOL DISTRICT WASTE ASSESSMENT - MARCH 2015

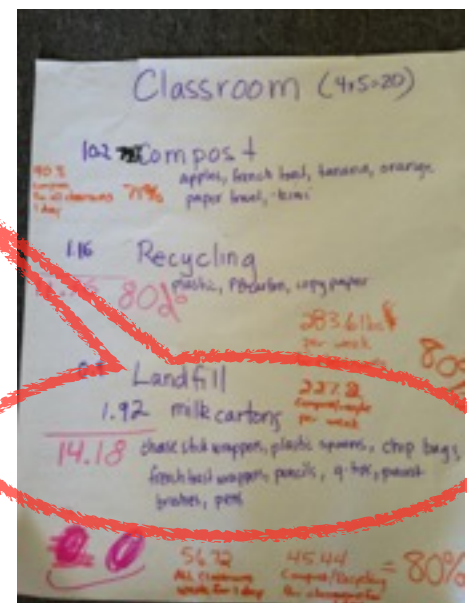
### Lake County Intermediate School Waste Audit

The 3rd Grade 'Styrofoam Stoppers' and recycling enthusiasts joined the DOOR Program Green Team for the Intermediate School Waste Audit. A big thank you to parent helpers and waste diversion experts Melissa and Blythe for getting dirty and sorting through old french toast with us.



### Top Findings:

1. Seventy-five percent of total waste was compost. Again, this is a lot of compost! A total of 26,784 pounds over the course of the year.
2. What are we throwing away? Milk cartons are again the number one items thrown away, followed by utensils, pens, pencils and plastic wrappers. Utensils are currently made of a non-recyclable plastic. Note, this waste audit was conducted pre-snack, which is a styrofoam-heavy meal. Consequently the sample waste stream recorded here under estimated the amount of styrofoam.
3. The Intermediate School is also doing a great job keeping recycling out of the trash. Thank you Intermediate School Green Team, students, teachers and staff for being responsible citizens of your school and the natural world.

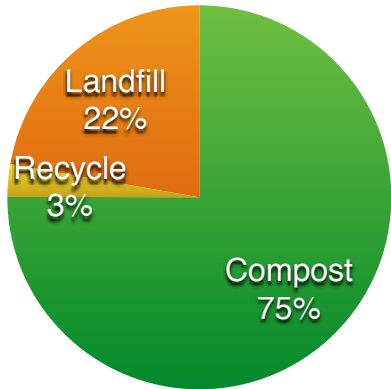


**LAKE COUNTY SCHOOL DISTRICT WASTE ASSESSMENT - MARCH 2015**

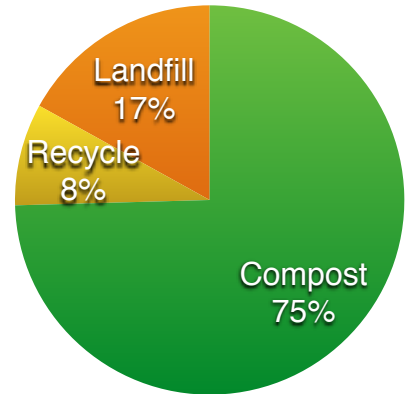
**Lake County Intermediate School Waste Audit**

|                 | Cafeteria Waste (lbs) | Classroom waste (lbs) | Total (lbs) |
|-----------------|-----------------------|-----------------------|-------------|
| <b>Compost</b>  | 19440                 | 7344                  | 26784       |
| <b>Recycle</b>  | 706                   | 835                   | 1541        |
| <b>Landfill</b> | 5760                  | 1670                  | 7430        |
| <b>Total</b>    | 25905                 | 9850                  | 35755       |

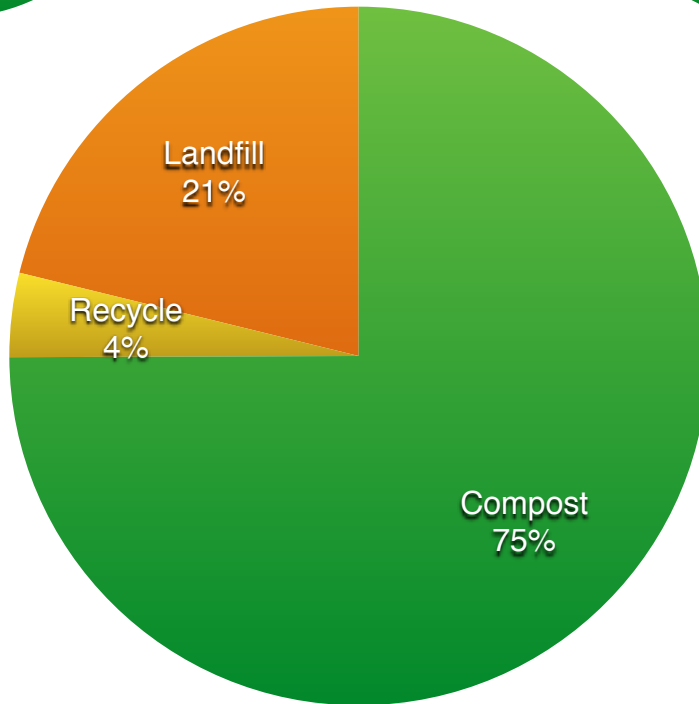
Cafeteria Waste



Classroom Waste



Total Waste



## LAKE COUNTY SCHOOL DISTRICT WASTE ASSESSMENT - MARCH 2015

### Lake County High School Waste Audit

#### Top Findings:

1. Eighty-seven percent of all waste was compost. Over the course of the school year this adds up to 40,000 pounds of potential compost and waste diverted. In carbon equivalent, 92,328 pounds carbon emissions.
2. We continue to throw away a lot of milk cartons. Milk cartons made of 1/2 of the volume of actual landfill trash. We also found a small percentage of styrofoam in the trash.
3. The High School has the highest waste diversion rate at 30%. This is a great accomplishment, congratulations green team!
4. More attention to classroom recycling would help. While recycling found in the trash is still a small overall percentage, in the classrooms, 13% of all trash could have been recycled. This is the highest percentage found in any of the three schools and indicates that greater care in classrooms is needed. Teachers and students can improve the care they take with recycling in the classrooms. What could have been recycled? Office paper, tin foil, cardboard and paperboard, plastic bottles and containers.

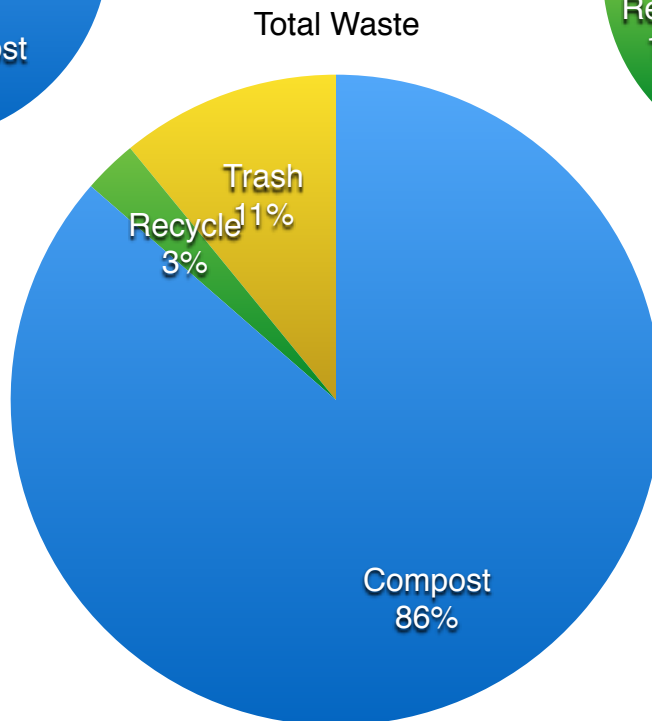
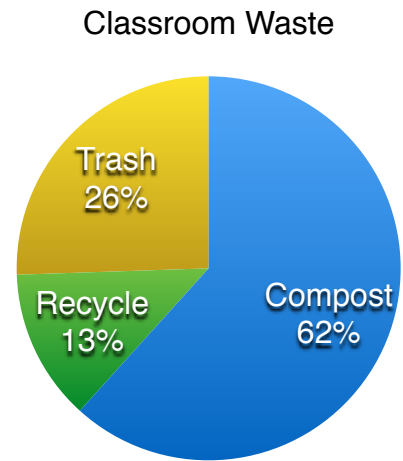
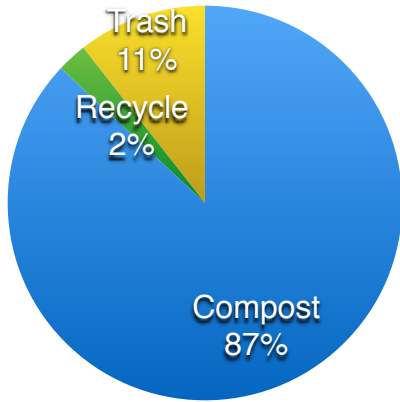




**LAKE COUNTY SCHOOL DISTRICT WASTE ASSESSMENT - MARCH 2015**

**Lake County High School Waste Audit**

|                | Cafeteria Waste (lbs) | Classroom Waste (lbs) | Total Waste (lbs) |
|----------------|-----------------------|-----------------------|-------------------|
| <b>Compost</b> | 23864                 | 626                   | 24490             |
| <b>Recycle</b> | 674                   | 130                   | 804               |
| <b>Trash</b>   | 2903                  | 259                   | 3162              |
| <b>Total</b>   | 27441                 | 1015                  | 28456             |



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## LAKE COUNTY SCHOOL DISTRICT WASTE ASSESSMENT - MARCH 2015

### Discussion

**The Environment.** The total greenhouse gas emissions reduced from the earth's atmosphere due to current recycling efforts is 61,397 pounds (EPA Environmental Benefits Calculator). Great job everybody! Potential greenhouse gas emissions reduction with the addition of a compost program is: 270,000 pounds.

**Recycling Programs.** Very little potential recycling was found in the trash at any school. Just 2.5% of the entire waste stream was made up of recyclable materials that ended up in the trash. This means our recycling programs are generally effective at each school. With a 29% waste diversion rate, and 2,601 pounds of recycling in just the past 8 weeks, the High School in particular shows excellent results. Congratulations to the DOOR Program Green Team, students, teachers and staff for all their hard work. Some classroom and kitchen areas do show room for improvement. Green Teams are preparing outreach campaigns to increase recycling efforts.

**Compost.** The majority of the waste stream has the potential to be composted, not recycled. Eighty percent of what is currently thrown away, and 67% of the entire waste stream is compostable. This is over 86,000 pounds of compost annually. The majority of this organic matter is uneaten lunch food.

***The case for compost: When sent to the landfill, organic matter decomposes anaerobically, giving off methane gas, a critical greenhouse gas. Municipal solid waste (MSW) landfills are the third-largest source of human-related methane emissions in the United States, accounting for approximately 18% of human relate methane emissions. Not only can organic matter be turned into soil, a valuable product, it can be allowed to aerobically decompose through the natural compost process.***

**Purchasing and Materials.** Milk cartons, styrofoam (polystyrene), and plastic utensils are reoccurring materials in our 'to the landfill' category. Under our current recycling system, milk cartons cannot be accepted as recyclable. Products change frequently, as do recycle systems, so we can keep an eye on milk carton options for improvement. The schools have already made the move to use re-usable utensils, though not at the High School. Styrofoam could be replaced by a more environmentally friendly disposable, or ideally, a re-usable option. Students are working with the Food Service Director on a solution.

Styrofoam has numerous strikes against it (other than the cost of purchase, which is low). 1) It is not recyclable (in Lake County and most areas) and must be sent to the landfill where it takes a very long time to biodegrade. 2) Studies show that human health can be negatively affected when toxic chemicals leach out of styrofoam and into food. 3) The production process is hazardous, causing air pollution and potential negative health affects.

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