Palo Alto Unified successfully transitions single-use foodware to reusable in 12 elementary schools using a central kitchen distribution model earning an annual net savings of $25,000.
Introduction

It all began with a spark of interest in January 2019. Fast forward to the start of the 2019 school year — Palo Alto Unified School District (PAUSD) accomplished the incredible feat of phasing out seven single-use foodware items used for breakfast and lunch across all 12 of their elementary schools, serving an upwards of 3,400 students. But it wasn’t free. The purchase of reusable baskets, stainless steel sporks, durable clamshells, plus a few other infrastructure updates cost the district $22,831. The District also hired two new part-time employees — a dishwasher and a van driver — at an annual cost of $27,000. Even with the initial investment of $49,831 to set up and maintain the new reusable foodware operation, Palo Alto Unified School District still earned an impressive savings of $25,000 per year, after an average five-month payback period.

This effort was made possible by a vigorous team from members of the Board, administrators, teachers, food service staff, and the students. Palo Alto Unified partnered with Clean Water Fund’s ReThink Disposable program to quantify the impact of their upstream source reduction pilot project to transition disposable to reusable foodware at 12 elementary schools over the 2019-2020 school year. The pilot was successful. It proves that the cost of maintaining a food system in schools that relies on daily use and disposal of foodware items is more expensive than developing and deploying a reusable foodware operation, even when accounting for the setup and ongoing costs (reusable product ware and reusable collection stations, and additional labor and washing costs).
Implementation Timeline

**June 24, 2019**
City Council passes an ordinance prohibiting city facilities and food vendors from distributing single-use plastic straws, utensils and stirrers starting January 1, 2020. Staff briefs PAUSD’s Board of Education. Even though not affected by the ordinance, the District decides to set an example and model the “right behavior” for students, staff, and parents.

**June – August 2019**
PAUSD staff develops a reusable foodware cost-benefit analysis and implementation plan for School Board approval. Once approved, Food Services selects and orders reusable foodware and infrastructure to distribute to the school sites.

**August 2019**
PAUSD fills two new positions prior to the school year to support the new reusable foodware program, and trains custodians and food service employees. PAUSD partners with “Zero Waste Champions” to launch an educational campaign for students and teachers in preparation for the transition.

**September 3, 2019**
Reusable foodware in use across all twelve PAUSD elementary school sites.

**October – November 2019**
Monitor, track, and quantify the impact of the reusable foodware pilot, “Phase One.” Gather information and data to support project analysis, such as disposable foodware procurement data, waste hauling impact, photos, and interviews with key staff.

**December 2019**
Pilot “Phase Two”— Eliminate plastic wrap on produce and plastic sauce cups and lids are replaced with reusable stainless steel side sauce cups. Pilot at one school for Health Department approval.

**January 2020**
Reduced trash services begin at eight elementary schools. Monitor and confirm ongoing reduction of materials in the Compost Bin.

**March 2020**
Reduced organics services begin at eight elementary schools.
New Reusable Foodware

- Plastic baskets with compostable liners are used to serve pizza, Bosco sticks, hamburgers, and other warm items
- Stainless steel sporks
- Salads and sandwiches are served in reusable plastic clamshells

Highlights

- 12 elementary schools district-wide serving 3,400 students daily
- Central kitchen preparation and distribution model is adapted for the collection, return, washing and storage of new reusable foodware
- 7 foodware items transition to reusable
- $25,000 in annual net cost savings*
- 436,540 pieces of disposable packaging eliminated every year
- 8,152 pounds of waste prevented every year
- Two new jobs created to carry out reusable food operations

*Net Cost Impact considers any upfront and ongoing costs associated with the purchase and care of reusable items and capital improvements needed to carry out ReThink Disposable’s recommendations.

“We were worried that kids would throw away baskets. But our students said, ‘Why would we throw these away? They are obviously not trash!’”

Rebecca Navarro, Sustainability Program Manager, PAUSD
1

**STOP 1**
5:30 am
Lunches assembled in reusable plastic Whirley clamshells, put on speed racks, and stored in walk-in refrigerator.

2

**STOP 2**
8:30 am
Food service van drivers pack up fruits and vegetables for each school while lunch counts arrive from school clerks, usually by 9:00 am.

3

**STOP 3**
10:00 am
Van drivers will pull hot and cold entrees per site and set up the trucks to leave.
STOP 4
Lunchtime!
Students line up to pick up their pre-ordered lunch (either hot or cold).

**Hot Lunch:** Pick up a reusable clamshell container, grab a fruit, milk, and stainless steel spork

**Cold Lunch:** Pick up a red reusable plastic basket

Collection carts are rolled out from multipurpose room and put around blacktop and seating areas, for students to return their used clamshells, sporks, and baskets.

STOP 5
12:30 pm
After lunch, collection carts are rolled back to multipurpose area and food service staff collect everything in one cart. Baskets are rinsed and dried, and stored on site, ready for the next day.

Van drivers circle back to schools to pick up used clamshells and sporks to return to the central kitchen for washing. Reusable clamshells are stored for the next day.

STOP 6
1:30 pm
Van drivers arrive back at central kitchens with dirties for washing.
## Results

<table>
<thead>
<tr>
<th>Disposable Product Replaced or Minimized</th>
<th>Practice Implemented</th>
<th>Percent Disposable Reduction</th>
<th>Annual Quantity of Disposable Items Eliminated</th>
<th>Payback Period (months)</th>
<th>Payback Period After (months)</th>
<th>Annual NET Cost Savings After Payback Period ($)</th>
<th>Annual Waste Reduction (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#5 Plaid Food Tray</td>
<td>Red baskets</td>
<td>92%</td>
<td>149,500</td>
<td>2.4</td>
<td>$5,644.16</td>
<td>1,450</td>
<td></td>
</tr>
<tr>
<td>#3 Plaid Food Tray</td>
<td>Red baskets</td>
<td>11%</td>
<td>8,000</td>
<td>32.7</td>
<td>$416.16</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>Plastic Heavy Weight Spoon</td>
<td>Stainless steel sporks</td>
<td>100%</td>
<td>35,000</td>
<td>23.3</td>
<td>$942.55</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Plastic Heavy Weight Fork</td>
<td>Stainless steel sporks</td>
<td>100%</td>
<td>31,000</td>
<td>26.4</td>
<td>$834.83</td>
<td>248</td>
<td></td>
</tr>
<tr>
<td>8x9x3 Hinged Container</td>
<td>Whirley reusable clamshells</td>
<td>100%</td>
<td>5,000</td>
<td>16</td>
<td>$1,363.50</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Plastic Sporks</td>
<td>Stainless steel sporks</td>
<td>100%</td>
<td>157,440</td>
<td>4.2</td>
<td>$5,249.64</td>
<td>763</td>
<td></td>
</tr>
<tr>
<td>Plastic Container w/ Lid</td>
<td>Whirley reusable clamshells</td>
<td>100%</td>
<td>39,600</td>
<td>1.7</td>
<td>$13,050.18</td>
<td>4,950</td>
<td></td>
</tr>
<tr>
<td>Plain Foil Sandwich Bag</td>
<td>Whirley reusable clamshells</td>
<td>100%</td>
<td>11,000</td>
<td>41.7</td>
<td>$522.17</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>Other Products to Support Changes</td>
<td>Bus tubs, carts, drying racks, etc.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-$8,476.96*</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Labor</td>
<td>1 van driver and 1 dishwasher</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-$27,000</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Waste Hauling</td>
<td>Trash + compost</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$23,976.96</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**TOTALS:**  
- **AVERAGE % Reduction of targeted foodware:** 88%  
- **TOTAL # Reduced:** 436,540 pieces  
- **AVERAGE Payback Period:** 5 months  
- **TOTAL Net Savings:**  
  - Year one, and $16,523.19  
  - Year two and beyond $25,000.15  
- **TOTAL Waste Reduction:** 8,152 lbs.

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“I noticed after the switch that students were pausing to sort much more thoughtfully, and the lunch supervisors were also providing a lot more guidance on this topic, than before. I saw that the waste streams were significantly cleaner at the sites where all of these variables were similarly replicated.” — Rebecca Navarro, Sustainability Program Manager, PAUSD

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*One-time infrastructure setup cost only affecting year one’s savings.*
Waste Impacts: The district’s hauler, GreenWaste, holds the contract to manage all hauling services for 10 of the 12 elementary schools at PAUSD. GreenWaste partnered closely with PAUSD to monitor the impact of the reusable foodware pilot on the volume of trash and compostable materials generated at each school site. GreenWaste staff reported that after a visual check of ten of the schools on the day before pickup, the external trash bins were 75% full and the compost/organics bins were 65% full. They were supportive of a change in contract to reduce the trash at eight* schools from 4 cubic yards (CY) a week to 3 CY a week. This change will lead to a $144.21 per month savings per school for trash. Additionally, the 3 CY compost bins can be brought down to 2 CY saving them $105.55 per month per school. The district will follow through with the hauler to request the reduced trash service rollout in January 2020 and monitor the compost for two additional months and deploy new bins with reduced compost service in March 2020.

*Two schools did not achieve measurable reductions in trash and compost at this time and will require further monitoring.

Set-up Costs: Reusable Foodware and Infrastructure

<table>
<thead>
<tr>
<th>Item</th>
<th>What is the item used for?</th>
<th>Number of items purchased</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic Red Baskets</td>
<td>Hot Entrees and Pizza</td>
<td>3,600</td>
</tr>
<tr>
<td>Stainless Steel Sporks</td>
<td>Dining</td>
<td>3,000</td>
</tr>
<tr>
<td>Clamshells</td>
<td>Cold Entrees</td>
<td>2,500</td>
</tr>
<tr>
<td>Black Carts</td>
<td>Reusable Collection</td>
<td>53</td>
</tr>
<tr>
<td>Cutlery Bin</td>
<td>Reusable Collection</td>
<td>106</td>
</tr>
<tr>
<td>Red Bus Tubs</td>
<td>Reusable Collection</td>
<td>159</td>
</tr>
<tr>
<td>6-Hole Silverware Display</td>
<td>Stainless Spork Holders</td>
<td>12</td>
</tr>
<tr>
<td>Flatware Cylinder</td>
<td>Holders for Silverware</td>
<td>100</td>
</tr>
<tr>
<td>Dish Trays</td>
<td>Camracks for Washing</td>
<td>14</td>
</tr>
<tr>
<td>Flatware Cylinder Racks</td>
<td>Silverware Washing Racks</td>
<td>2</td>
</tr>
<tr>
<td>Red Basket Tub Trucks 500 lb</td>
<td>Used Product Collection</td>
<td>2</td>
</tr>
<tr>
<td>Mobile Drying Racks</td>
<td>Drying Area</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Upfront Investment: $22,831
Plans for Additional Source Reduction

The Health Department requires PAUSD to take steps to prevent cross-contamination. To meet these standards, fruit is individually packaged in plastic wrap and salads and side dishes are packaged in single-use plastic sauce cups with plastic lids. PAUSD aims to eliminate these three additional single-use plastic packaging items. The Nutrition Services Supervisor for the District is working with the Health Department on a process that eliminates these three items while still preventing cross-contamination. PAUSD is proposing to eliminate plastic wrap from fruit and vegetables by serving the food on a half-sheet with tongs. PAUSD also plans to eliminate single-use plastic sauce cups and lids by replacing them with stainless steel cups.

Update: After piloting the cross-contamination free process for fruits and side dishes with no packaging at El Carmelo Elementary School, the District is proud to report that they received Health Department approval and plans to roll-out this protocol at all sites in 2020. Additionally, the District plans to conduct a detailed audit over the 2019-2020 winter-break to calculate if there was any product loss.

Closing

This case study serves as a model for other school districts considering phasing out toxic, costly, and wasteful single-use foodware so commonplace in daily school food service. These impressive results and detailed process shared is wholly transferable to other school districts and academic institutions, and most importantly, quantitatively demonstrates that eliminating single-use disposable food packaging is not only better for the environment and the health of our students, but also improves the District’s bottom line. The only way forward is a packaging-free school food program. It’s the “right thing to do,” models reuse for young students, and is cost beneficial.
Acknowledgements

Staff at Clean Water Action and Clean Water Fund involved in the implementation, analysis and writing of this case study include Samantha Sommer (Program Manager), Jamie Smith, Grace Lee, and Chris Slafter (ReThink Disposable Specialists).

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ReThink Disposable, a project of the national non-profits Clean Water Action and Clean Water Fund, advocates for aggressive policies and implements innovative programs to end the use of disposable foodware so commonplace in the food service industry. Our mission is to catalyze a culture of reuse that protects people and the planet and improves business's bottom line. By partnering with local government agencies, and businesses and institutions, ReThink Disposable staff engages food business operators to identify and deploy cost-saving recommendations that transition their operations from single-use to reusable. Staff provides technical assistance to participants and measures the impact of our source reduction recommendations. To learn more about our program, review exciting case studies and results, and see our partners, please visit us at www.rethinkdisposable.org or reach us at rethinkdisposable@cleanwater.org.