

Case Study: Reducing Food Waste in Large Institutions

Lessons learned from Smart Kitchens San Diego

Smart Kitchens San Diego is a regional initiative developed by San Diego Food System Alliance. This report will share findings, successes, challenges, and lessons learned for those interested in pursuing similar food waste prevention and donation models.



**SMART
KITCHENS
SAN DIEGO**



Funded by a grant from the Department of Resources Recycling and Recovery (CalRecycle) through California Climate Investments.



"There are always leftovers in the kitchen, from scraps as we prepare meals to leftovers from room service to food that isn't purchased in the café. By participating in the 'Smart Kitchens San Diego' initiative we are learning to be more efficient by tracking what doesn't sell, what food is composted, donated and wasted."

— Michael Harrison, Sous Chef, UC San Diego Health La Jolla



"The fear of food poisoning and legal action has always deterred chefs from giving leftover food to the needy. Since partnering with the San Diego Food System Alliance, we have confidently given over our buffet items to the less fortunate. Instead of filling trash cans we are filling hungry stomachs. Thank you for the support and vision to do what we all should have done long ago."

— Robert Lippman, Sous Chef, Viejas Casino & Resort



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INTRODUCTION

Over 500,000 tons of food is wasted in San Diego County every year, while at the same time over 500,000 residents face food insecurity.

Partnering with institutions to reduce food waste

Smart Kitchens San Diego (SKSD), a program spearheaded by the San Diego Food System Alliance (the Alliance), set out to reduce food waste in San Diego County by partnering with large institutions across the region. Fifteen institutions spanning the hotel, casino, healthcare, stadium, and university sectors enrolled in the SKSD program. Participants received subsidized food waste tracking devices and coaching on food waste prevention strategies like inventory management, recipe reuse, and optimized production levels. Alliance staff also established food donation programs at each site to ensure that any excess food went to people, not landfills. The overall SKSD process for participating institutions is illustrated in the infographic below:



CHALLENGES

- ➡ There was a lack of source reduction programs, which seek to reduce the volume of surplus food generated. Large institutions were not utilizing the latest data-driven food waste prevention technologies.
- ➡ Prepared food donation was perceived as a barrier for food recovery partners, as it requires additional layers of coordination for food safety and transportation. A clear need developed to increase the scope of food donations to include prepared, hot food items from kitchens.

PROGRAM SOLUTION

- ➡ Combine source reduction technology & prepared food donation programs to ensure no edible food is wasted.
- ➡ Engage with a diverse variety of sectors to learn best practices across different types of institutions.
- ➡ Ensure the sustainability of food waste reduction partnerships by cultivating strong relationships.

KEY PARTNERS

15 Participating Institutions

Role: Track food waste on Leanpath devices, participate in food donation program. Identify staff “Champions” to lead tracking and donation efforts.



A diversity of sectors – including hospitality, casino, healthcare, stadium, and university – were targeted in order to identify sector-specific findings and best practices.

5 Non-Profit Food Recovery Partners

Role: Pick up excess food from Participating Institutions. Increase other food rescue activities utilizing commercial coolers and vans provided by SKSD. Distribute food to community members in need. Partners include the San Diego Food Bank, Heaven’s Windows, The Foundry Community Church Pantry, New Alternatives, People Assisting the Homeless (PATH).

Food Waste Prevention Partner

Role: Provide food waste tracking hardware and software, facilitate staff trainings, provide technology support, and host quarterly coaching calls.



Program Manager

Role: Program administrator, manager, and facilitator. Oversee program logistics and partnerships, provide food waste prevention and donation technical assistance, and report progress to grant funders.



PROGRAM IMPLEMENTATION

Phase 1 – Outreach & Enrollment

- Alliance staff conducted outreach to recruit institutions by calling, emailing, and meeting in person
- Food donation partners were identified through an RFP process with San Diego Food Bank.

Phase 2 – Contract Review

- An MOU contract between the Alliance, Leanpath, and each individual institution was established. The contract review process with the institutions was complicated and subject to delays.
- Securing contracts and providing capacity building assets to the non-profit food donation partners were relatively simple processes completed in August.

Phase 3 – Leanpath Launches

- After contracts were completed, a Leanpath Launch day was scheduled at each site, which marked the start of food waste tracking. Leanpath and Alliance staff spent a day training partner institutions on the Leanpath technology and program structure.
- After the launch, kitchen staff at the partner institutions committed to accurately and consistently tracking all food waste.

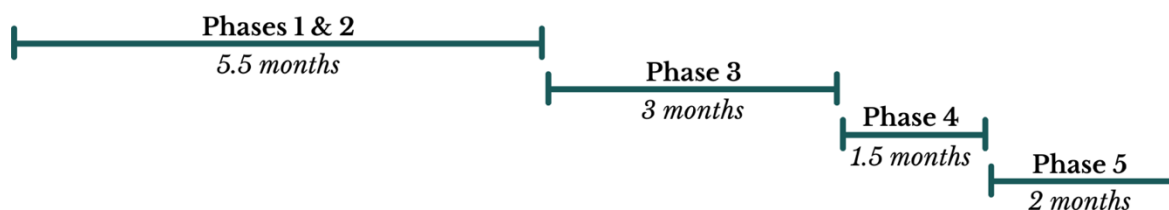
Phase 4 – Set Baselines

- After at least a month of consistent food waste tracking at an institution, Leanpath coaches analyze data and establish a baseline food waste level, which represents average weekly food waste before any interventions at that particular site.
- After the baseline is set, prevention strategies are implemented and reductions are measured against the baseline weekly.

Phase 5 – Onsite Donation Program Setup

- Alliance staff worked with the food donation partners and institution champions to create Standard Operating Procedures for food donations, outlining food safety protocols, storage and packaging instructions, and pickup logistics.

Average Timeline for Phases 1–5 (averages across all sites)



DATA COLLECTION & RESULTS

Data Collection

All data referenced in this case study represents results from the program start, April 6, 2018, through March 1, 2020.

Food waste diversion data was collected from two sources.

1. **Food waste was weighed by staff at the 15 participating institutions on Leanpath tracking devices.** The Leanpath 360 Tracker records the weight of food waste, takes a photo, and captures categorization data inputted by staff (i.e. food type, loss reason, loss location, disposition). After an initial 6-8 week period of tracking business-as-usual food waste on the Tracker, a baseline was set for each site. The baseline represents the average food waste generated at the site: this is the metric that prevention is measured against. After the baseline was set, sites began implementing strategies to reduce food waste.
2. **The non-profit food recovery partners directly weighed all food donations rescued.** At the start of the SKSD program, food recovery partners were provided with a cargo van and/or a commercial cooler to increase their capacity to rescue food. The overall donation figures listed in this report include both the pounds of food rescued from the 15 institutions AND pounds of food rescued due to the additional pickup capacity provided by the cargo vans and coolers (e.g. increased pickup volume from pre-existing partners and/or new donation partnerships established).

Limitations of data collection: Each institution received one Tracker. Due to issues like kitchen logistics and staff capacity, some institutions were not able to weigh all food waste occurring across the entire site on the single Tracker. For these specific sites, which were predominantly in the hotel sector, a decision was made to limit tracking to one kitchen site on the property and/or to focus on one loss reason (e.g. overproduction from events). The data captured may therefore under-represent wasted food at these institutions. Additionally, institutions launched their tracking and donation programs at different times throughout the grant period. Therefore, there is more food waste data captured from sites that launched earlier in the program versus sites that launched later on.

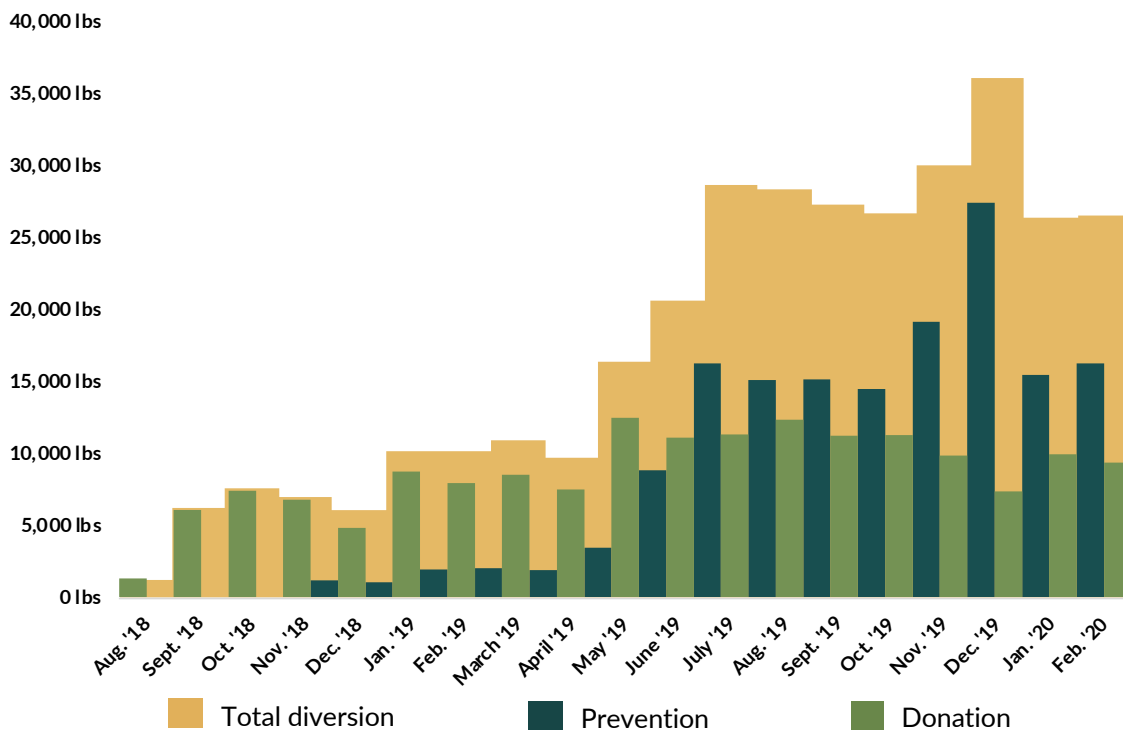
Results

Overall impact at a glance, including total pounds of food waste diverted through prevention and donation are shown below, framed by food waste images from the Leanpath Tracker.



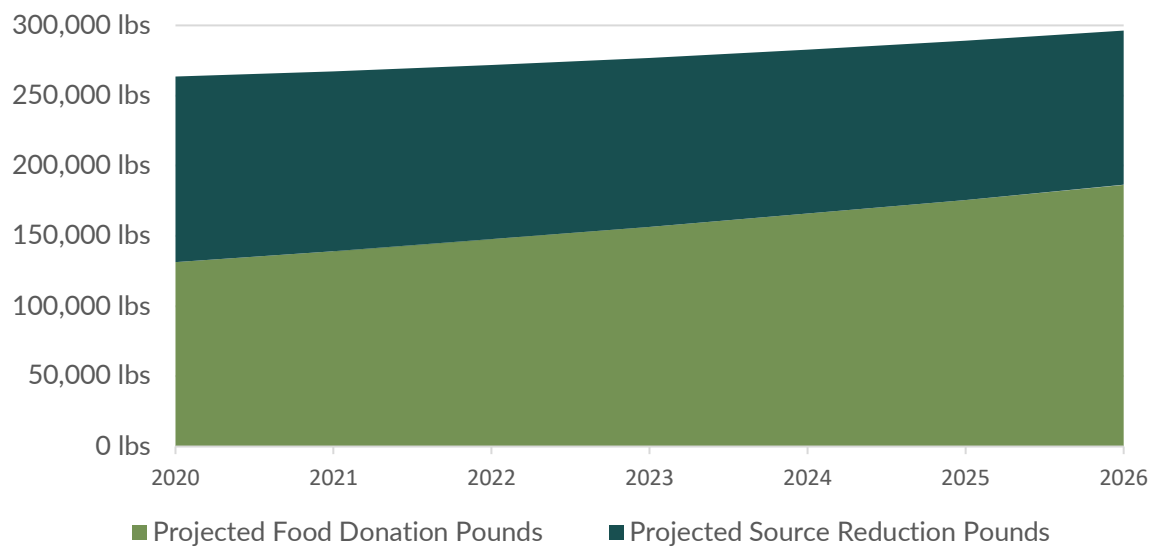
Food Waste Diverted During Grant Term

The graph below demonstrates monthly pounds of food waste diverted through prevention, donation, and cumulatively throughout the grant term.



Food Waste Diversion Projections through 2026

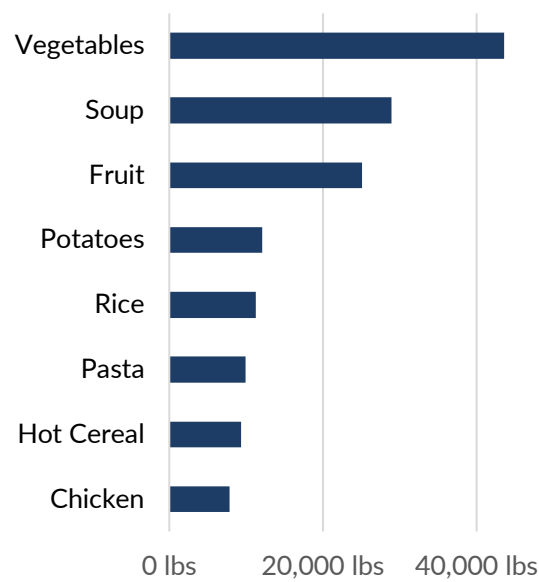
The Alliance cultivated sustainable, long-lasting partnerships through the SKSD initiative. Food waste prevention activities are expected to continue beyond the grant term. Annual projected diversion of food waste through source reduction and food donation are shown below.



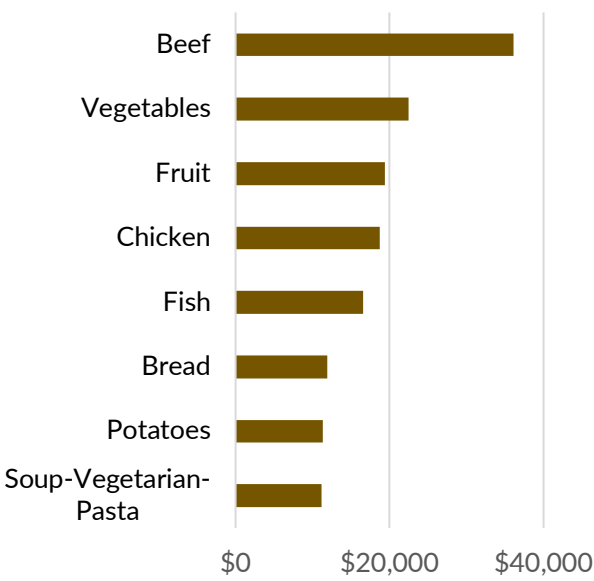
Top Wasted Foods

The Leanpath Tracker devices captured various information about food waste, including types of food wasted, weights, and approximate cost. The graphs below show the Top 8 Wasted Foods across all sites by weight and by value.

Top Wasted Foods by Weight:

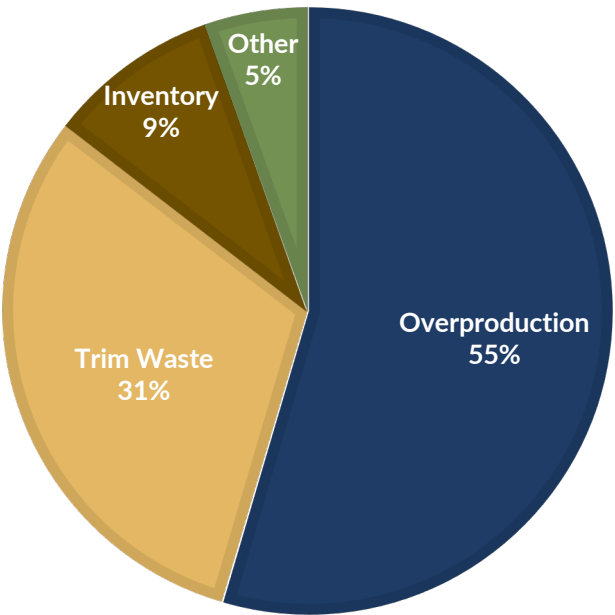


Top Wasted Foods by Value:



Top Loss Reasons

In addition to capturing food waste weights, the Leanpath Tracker also captures information about major sources and drivers of food waste, also referred to as loss reasons. The pie chart below reflects cumulative loss reason data across all sites throughout the full grant term.



- Overproduction**
Excess supply of prepared food (e.g. leftover food from an event, surplus soup from the service line, pasta salad that was prepared but not served)
- Trim Waste**
Inedible portions of fruit, vegetables, and meat (e.g. onion skins, banana peels)
- Inventory**
Items past the date label in inventory, or items that spoiled in inventory
- Other**
Mishandling, quality

Sector-specific Findings

The SKSD program was designed to engage a diverse variety of sectors in order to learn best practices across different institution types. Each participating kitchen had unique functions and food service types. Some of the best practices for tracking and donation are shown below.

	HOTEL	CASINO	HEALTH CARE	STADIUM	UNIVERSITY
Top sources of food waste	Banquets, catered events	Buffet	Patient trayline, cafeteria	Inventory, concessions	Service line
Best practices for tracking food waste	Focus tracking efforts in banquet/event kitchens for highest ROI	Designate buffet station source by cuisine type (e.g. Mexican)	Designate between two sources: patient trayline or cafeteria	Concessions stands bring excess food to central kitchen for tracking post-event	Regularly re-train staff to mitigate for student staff turnover
Best practices for donating food	On-call pickups	Regular pickups	Regular pickups	On-call pickups	Regular pickups.

PROGRAM SUCCESSES, CHALLENGES, AND LESSONS LEARNED

The Smart Kitchens San Diego (SKSD) initiative was inspired by the work of StopWaste, a public agency in Alameda County, that developed a source reduction program in partnership with Leanpath called the “Smart Kitchen Initiative”. While developing the SKSD program, the Alliance gleaned advice from conversations with StopWaste staff and incorporated lessons learned into the SKSD program structure. In the spirit of collaboration and continued learning, this section will outline some of the SKSD program successes, challenges faced, and advice for those interested in implementing a similar program.

Successes



The Smart Kitchens San Diego program was successful in **developing strategic cross-sector partnerships for food waste prevention and recovery**. Our program included both a waste prevention and a food donation component and brought together fifteen businesses and six community partners around a common goal to divert food waste from landfills. These partnerships would not have occurred naturally, but by creating these connections, the Alliance was able to leverage the collective impact model and initiate new mutually beneficial relationships.



The participating institutions were required to pay for a small portion of the Leanpath services, which helped **ensure organizational buy-in and commitment**. The grant funds fully covered the cost of the Leanpath tracker device and partially covered the cost of two years of software fees.



Another successful component of the SKSD program is the sustainability of the initiative. **Food waste prevention and recovery initiated through this program will not end after the grant term; instead it is expected to continue into the future**. The Alliance provided long-term capacity for food rescue to the partner food recovery agencies by granting cargo vans and commercial coolers through a competitive RFP process. For the institutions, the two years of Leanpath services kicked off on each individual institution’s Leanpath Launch date. As such, Leanpath services for all sites will continue past the grant term. After the initial two years, sites may continue services with Leanpath at a discounted rate, since they own the tracking equipment. Several sites have already indicated interest in continuing the relationship with Leanpath beyond the subsidized 2-year period. Because training

and administrative support was provided by the Alliance at program start, both the institutions and food recovery agencies are comfortable managing their responsibilities and relationships on their own. The Alliance was successful in cultivating a long-term, sustainable food waste prevention program.



The Leanpath tracking system allowed for streamlined data collection. Data could easily be accessed from anywhere via Leanpath's online dashboards.



An Alliance staff member served as the project coordinator throughout the grant term, helping to facilitate connections for each institution site and providing additional touch points for coaching and communications. The project coordinator scheduled bi-weekly or monthly calls with site Champions to review Leanpath data and conducted site visits for in-person meetings and staff training. These **additional touch points were a useful tool to keep sites engaged** in between the quarterly coaching calls included in the Leanpath services. The ability to provide in-person support helped Alliance staff build strong relationships.



The grant funds covered a starting supply of food donation containers, which was very much appreciated by the food donors. Each site received about \$900 worth of food donation containers. For most sites, this quantity was enough to last through at least 1 year of food donations.



Including both source reduction and donation programming within the SKSD initiative was helpful for staff buy-in. The food donation component of the program is more tangible and understandable, and immediately leads to positive community impacts. During the recruitment process, the food donation part of the program was often the main draw for participation.

Challenges

CHALLENGE 1 – The SKSD program sought to engage with 15 separate institutions in order to gather data from a wide range of sectors. Recruiting and managing fifteen separate sites required substantial staff effort.

CHALLENGE 2 – Kitchens are extremely busy environments and it can be difficult to add new responsibilities into already packed workdays. Maintaining long-term engagement with site Champions and kitchen staff, specifically in an industry with frequent staff turnover, was challenging. In the SKSD program, the Champions'

level of leadership and engagement determined success.

CHALLENGE 3 – Institution recruitment, securing contract signatures, and onboarding activities took much longer than projected, which led to a delayed start in food waste prevention activities.

Lessons Learned

Outreach & Enrollment

- ➔ Streamline recruitment and program management by selecting fewer partners.
- ➔ Prioritize efforts to track all food waste across an entire institution by providing each institution with multiple trackers. This is especially true for institutions like hotels or universities that have several kitchens and dining areas spread out geographically.
- ➔ Develop partnerships with cities, hotel associations, or other trade groups to help support the recruitment process.
- ➔ If developing food waste prevention projections before the program starts (e.g. for a grant application), account for a long recruitment process.

Contract Signatures

- ➔ Simplify contracts as much as possible.
- ➔ Reduce the number of separate contracts and sites to manage by recruiting organizations that have multiple locations. For example, a healthcare company or hotel chain may have multiple hospital locations. This way, a contract with one organization can result in multiple sites.

Leanpath Launches

- ➔ Offer several internet connection options for food waste tracking technology, including both ethernet and broadband network options.
- ➔ To mitigate communication gaps between decision makers and Champions/kitchen staff that may slow down onboarding activities, provide multiple program overview presentations to Champions and kitchen staff before the tracking system is installed.

Setting Baselines & Post Baseline

- ➔ The Champions' level of leadership and engagement is closely correlated with staff participation. Take time early on to select capable Champions. Meet with decision makers to stress the importance of the Champion role and encourage careful selection.
- ➔ Provide incentives for the Champions, e.g. cash stipends.
- ➔ Acknowledge and highlight individual leadership through media spotlights.
- ➔ Offer regular retraining to mitigate for knowledge loss due to staff turnover.

CONCLUSION

By cultivating long-lasting cross-sector partnerships and combining source reduction and food donation solutions, the Smart Kitchens San Diego program has diverted over 335,000 pounds of food waste from landfill and has the potential to divert nearly two million additional pounds of food waste in the next six years.

This impact could not be achieved without the generous participation of and collaboration between all SKSD partners. The Alliance is incredibly grateful to the hundreds of kitchen staff members who added food waste tracking to their daily responsibilities and to the many food recovery agency staff members and volunteers who rescued over 170,000 pounds of food. The Alliance would also like to thank CalRecycle and California Climate Investments for their generous funding of the Smart Kitchens San Diego program through the Food Waste Prevention and Rescue Grant Program.

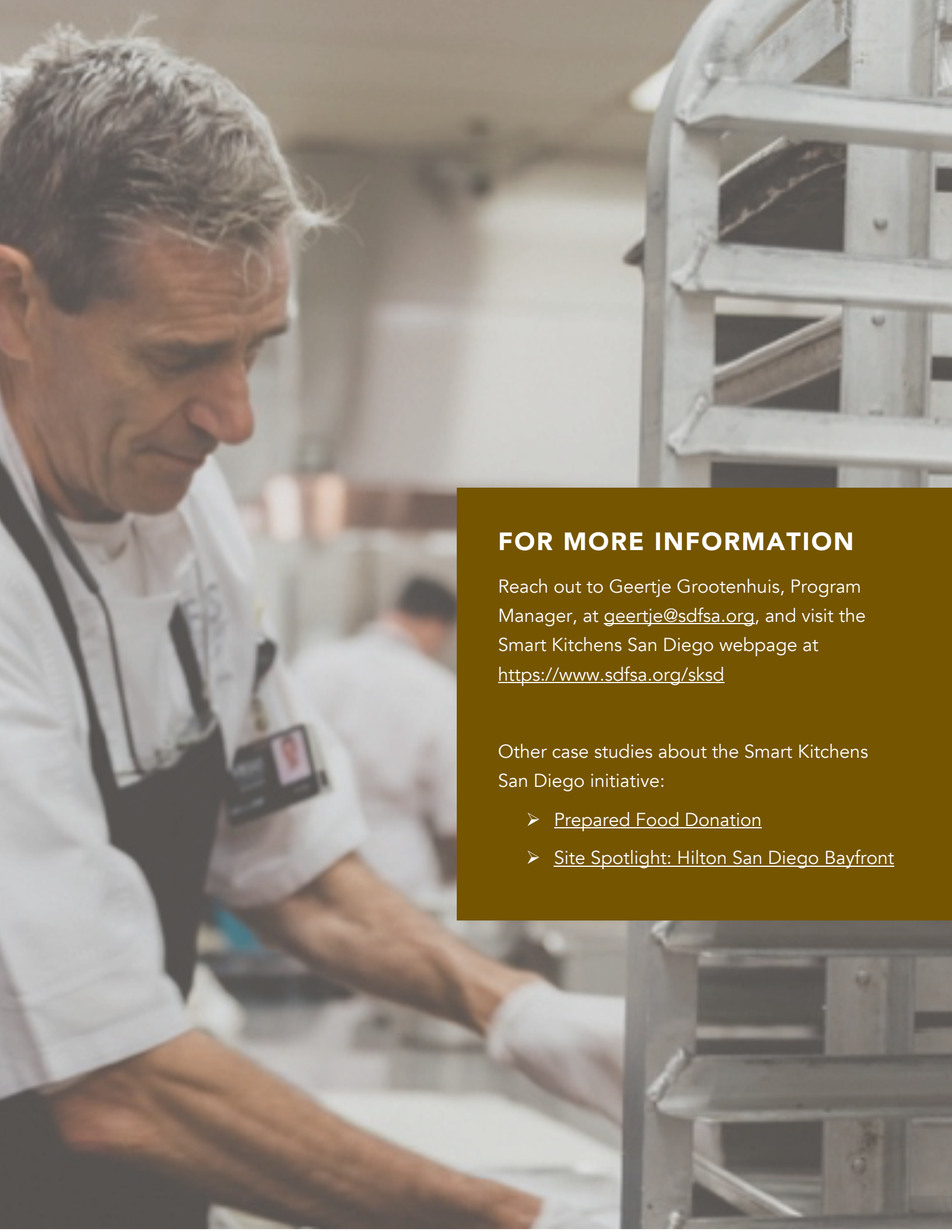


1.9 million lbs

total estimated food waste diversion
projection for 2020-2026

“This program belongs in every kitchen... small, medium size, it doesn’t matter. It belongs.”

— Miguel Rodriguez, Sous Chef, UC San Diego Health Hillcrest

A man with grey hair, wearing a white chef's coat and a black apron, is focused on his work in a kitchen. He is looking down at something on the counter. In the background, there are metal shelving units and other kitchen equipment. The lighting is warm and the overall tone is professional.

FOR MORE INFORMATION

Reach out to Geertje Grootenhuis, Program Manager, at geertje@sdfsa.org, and visit the Smart Kitchens San Diego webpage at <https://www.sdfsa.org/sksd>

Other case studies about the Smart Kitchens San Diego initiative:

- [Prepared Food Donation](#)
- [Site Spotlight: Hilton San Diego Bayfront](#)