

HOTEL | KITCHEN

Fighting Food Waste in Hotels



ACKNOWLEDGMENTS

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01

Executive Summary

Food is our most vital human connection to the planet. It is sacred to our cultures; our very survival depends on a steady supply of food. Yet despite our investment of time, money, labor, and precious natural resources to grow, process, manufacture, and transport it, one could say we no longer value food as we once did.

In the US, it is estimated that 30-40% of all food is lost or wasted¹. A large portion of this food waste ends up in landfills where it emits methane, a potent greenhouse gas². The amount of nutrients wasted globally is likely more than enough to feed every malnourished person on the planet³.

When food goes to waste, everything that was invested into food production is also wasted, including the forests and grasslands that are cleared for agriculture or grazing, representing the largest driver of biodiversity loss on the planet⁴.

It's time to re-evaluate and recognize food's incredible impact and value.

WWF is working to transform sectors where we see potential to make the biggest impact. It's estimated that 40% of food waste happens in customer-facing businesses like restaurants, supermarkets and hotels⁵. Hotels, which serve \$35 billion dollars⁶ in catering and banquets each year in the US, are an ideal test bed to learn, iterate, drive waste reduction, and help reshape the food service industry as leaders in food waste reduction.



WHY WAS THIS TOOLKIT CREATED?

World Wildlife Fund and the American Hotel and Lodging Association, with support from The Rockefeller Foundation, created this toolkit as a challenge to the industry to:

- PREVENT food waste from occurring at their properties,
- DONATE what cannot be prevented but is still safe for people to eat, and
- DIVERT the rest away from landfills.

This toolkit provides the background, tools, and resources a property needs to meet these challenges. It is the product of 6 months of qualitative research with over 50 industry professionals and a 4-month long quantitative demonstration project at 10 hotels, with participation from over 200 hotel staff, across the country.

By implementing a few of the strategies presented in this toolkit, participating properties saw food waste reductions between 17% and 38% during the demonstration project period alone – percentages we would expect to see replicated at properties using this toolkit as a guide.

WHY SHOULD I USE THIS TOOLKIT?

Reducing food waste at your properties does a lot more than feed people and help the environment: it can directly impact your bottom line, engage your staff, and strengthen relationships with your customers. Specifically, we found these strategies can:

1. **Save your property money with lower costs for food and waste hauling.**
Demonstration projects saw in some cases a **3% or more reduction in food costs.**
2. **Harness staff desire to tackle a global problem.**
More than 90% of staff reported they wanted to take action to reduce food waste.
3. **Strengthen customer relationships.**
Individuals, meeting planners and corporate clients, especially large consulting firms, expect their event venues to act sustainably, including minimizing waste and working with community partners to donate remaining food. **Over 60% of guests surveyed at a breakfast buffet expected the hotel restaurant to be reducing waste from their operations.**

WHO IS THIS TOOLKIT FOR?

Because changes in buffet and banquet service can have major impacts, full-service hotels are the primary audience for this toolkit. But you don't have to operate buffets and banquets to make a difference – the toolkit includes valuable approaches (such as separation and measurement schema, waste reducing menu development tips, setting up a food donation program, and ideal diversion strategies) that can be applied to all property formats and food service institutions, including restaurants, cruises, and catering companies.

HOW MUCH TIME WILL THIS TAKE?

Our demonstration projects saw measurable results in as little as four months, but these achievements took leadership, commitment and sustained effort. Implementing a successful food waste management strategy requires between 5 to 10 hours of total staff time per week to get the program started, with daily or weekly reinforcement by leadership at staff meetings to maintain it. A truly successful strategy requires a culture shift in the way food is valued and managed by staff, which evolves over time with daily reinforcement of better habits.


HOW MUCH WILL IT COST?

Implementation costs are variable and dependent on several factors, but primarily include staff training time and separation and measurement equipment purchases. Despite a range in costs – for example, food waste tracking technologies have higher upfront costs – some larger investments can provide up to a 50% reduction in food waste, with cost savings in the tens of thousands at some full-service hotels⁷.

WHERE DO I GO IF I HAVE MORE QUESTIONS?

You can visit:

- HotelKitchen.org, for more on the toolkit
- WorldWildlife.org, for more on WWF's work fighting food waste
- FutherwithFood.org, for more resources on food loss and waste in America

Contact us directly with questions or to share your property's food waste management journey at foodwaste@wwfus.org. 

02 Introduction

The production and consumption of food constitutes one of the largest environmental threats to our planet. Eliminating waste and shifting consumption patterns represent our biggest opportunities to establish sustainable and regenerative food systems.



Addressing food waste⁸ is critical – from field, to fork, to landfill. Worldwide, people waste one of every three food calories produced. In the US, it is estimated that 63 million tons of food are wasted each year, with 40% coming from consumer-facing business, including hotels. Wasted food may generate as much as 10% of global greenhouse gas emissions, be responsible for more than a quarter of all deforestation, and use nearly a quarter of all global water resources. This waste occurs while 41 million Americans, including 13 million children, struggle to find their next meal. Reducing food waste is one of the easiest and most effective ways to reduce the environmental impact of our global food system and increase food availability both for the food insecure and a growing population without expanding agricultural production.

Food and beverage sales for events and banquets can be an important part of a full-service hotel's business. Since providing clients with memorable and abundant meals is paramount, the biggest fear is running out of food. As a result, multiple participants along the food value chain add their own "insurance policy" to avoid that scenario. The **client** will generally provide a guest count – for example 2,500 – that the **meeting planner** will interpret based on the makeup of their group, say as, "2,500 mostly male heavy eaters." The **event manager** will add a 3% overset rate and send all of this information to the **chef** who preps a little extra as backup. The day of the event, the **banquet manager** sets the 2,500 plus the extra prepared by the kitchen to make sure the buffet looks abundant; the **guest** takes a heaping plate because they fear the food will be gone if they decide they want seconds.

These insurance measures throughout the process result in the production of tons of excess food. For example, an 800-person event audit performed by WWF showed the kitchen produced roughly 2 pounds of food per person for lunch when an average person only consumes about one pound per sitting⁹. That's approximately 800 pounds of excess food for one meal!

This excess, which should ideally be prevented with improved menu design, must be repurposed within the hotel, donated to community partners if it cannot be repurposed, diverted to compost if it cannot be donated, or worst case (though most common) sent to a landfill. **While 85% of hotels admit to adding some level of insurance, only 32% have some form of a donation program in place to handle this food,** however many have internal reuse policies to manage a portion of this overproduction.

As you use this toolkit and begin to implement your own food management strategy, we encourage you

to keep these statistics and stories in mind as you think about ways to challenge the status quo through innovation in food planning, menu development, and food service.

To help the hospitality industry do its part in fighting food waste and helping local communities meet the needs of the food insecure, World Wildlife Fund (WWF) and the American Hotel and Lodging Association (AHLA), with support from The Rockefeller Foundation, created this toolkit to challenge the industry to PREVENT food waste, DONATE what cannot be prevented and DIVERT what remains. This toolkit is a step-by-step guide to developing a food management strategy at your hotel that will prevent excess food production, help establish donation partners, and set up an organics recovery program that diverts any remaining food from landfill. The toolkit includes the steps and guiding principles for implementing the following activities:

1. Establishing a Food Waste Management Task Force and strategy to drive the initiative,
2. Establishing an appropriate separation and measurement scheme that monitors waste reduction performance and rewards and recognizes staff for innovation and success,
3. Training staff on specific preventive actions that can be taken as part of their roles to minimize wasted food,
4. Managing and recovering unavoidable food waste, and
5. Engaging both internal and external stakeholders, especially in developing food donation programs.

This toolkit also provides real world case studies that highlight innovative strategies used at properties that participated in a series of demonstration projects led by WWF in the spring of 2017. [HK](#)

03

In the spring of 2017, WWF, in collaboration with the AHLA, and with support from The Rockefeller Foundation, set out to work with hotel properties to understand the dynamics of food waste generation in the hospitality industry. The goal was to identify the most effective strategies for engaging hotel staff in food waste reduction and management programs.

Project Background

Two research studies laid the foundation for the four-month long industry demonstration projects (See Box 1.10). Based on the findings of these initial studies, WWF worked hand in hand with ten unique hotel properties of varying size and service types across the country to implement a food waste reduction program. While implementation took slightly different forms for each property, most participants embraced the challenge, measured data consistently, and worked hard to engage employees on a weekly or even daily basis.

Leadership proved the most important factor to successful project implementation and food waste reduction. WWF saw the most traction at properties where the highest leadership levels (owners, general managers, and executive staff) fully embraced the demonstration project. Properties floundered

where leadership involvement was lacking. WWF estimates that implementing a food waste employee awareness and engagement campaign (including weekly measurement) could save hotels at least 3% on food spend¹⁰. By incorporating measurement technology, cost savings could be as high as 10%. This does not include potential savings in waste disposal costs that would be associated with decreased hauling requirements. It also does not include the associated financial benefits of establishing a food donation program, which lowers waste disposal costs and can earn tax incentives or deductions. Increasing staff awareness and measuring wasted food within a hotel property provides multiple benefits with little to no risk. Continue reading to find out how your property can see similar results from implementation of a food waste management strategy. [HK](#)

BOX 1.1 | RESEARCH STUDIES

Two initial research studies were conducted at the outset of the project. The first, by Steve Schein and Bellinson & Co, surveyed 32 participants from multiple hotel brands including executive chefs, food and beverage directors, and general managers. The study found that:

1. Few properties have a plan to address food waste or a dedicated person responsible for coordinating efforts.
2. Participants expressed a strong need for specific training and education that is lacking across the industry and within operations.
3. Measurement and tracking of food waste is limited and informal.

In the second study, Dr. Tim de Waal Malefyt was commissioned to dig deeper into kitchen behavior and operational culture by conducting ethnographic interviews with key individuals in the food and lodging industry. Dr. Malefyt found that:

1. Food waste should be measured and standardized.
2. There must be an increased awareness in foods' experiential and business value.
3. Positive work culture dynamics can empower employees to minimize food waste.

“Managing food waste needs to be a strategic initiative from senior management or corporate. There needs to be a coordinated communication plan. Everyone needs to understand his or her roles and buy-in.”

04

Getting Started



BUILDING A FOOD WASTE MANAGEMENT TASK FORCE

GOALS AND OBJECTIVES

Building an effective food management strategy requires collaboration between multiple departments within a hotel. It must include departments that receive, store, prep, serve, and dispose of food as well as the catering and event sales department. Thus, to develop an effective food management program and change the way food is prepared, handled, and served, you must establish an internal Food Waste Management Task Force (Task Force), like a “Green Team”, that includes key, cross-functional leaders and staff from across operations.

The goals and priorities for this team include:

- Developing a baseline metric of how much food waste is generated at the property
- Setting goals for the property to reduce food waste generation
- Implementing prevention tactics in planning, handling, and service phases
- Managing the property’s food donation program with community partners
- Managing food waste diversion processes

MEMBERS OF THE TASK FORCE

Members should include property food waste reduction champions and representatives from each department involved in food service or waste management, as represented throughout the toolkit by the below icons (Figure 1).

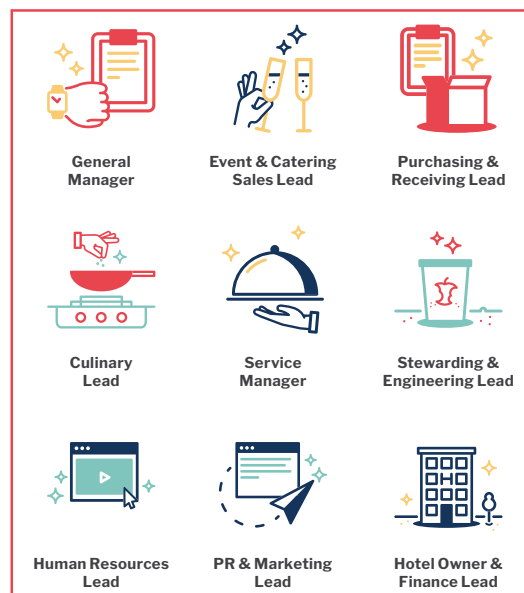


Figure 1: Involved Departments



General Manager – The General Manager or another member of the executive team who will lead the effort, provide the mandate, and select additional members of the team.



Event & Catering Sales Lead – The Director of Catering or Sales who will approach food waste prevention from the client perspective. The lead and his/her team are responsible for communicating the hotel's food waste prevention initiatives to clients, preparing the banquet menu, and finalizing headcounts at key points during the sales cycle.



Purchasing & Receiving Lead (might be the same as the culinary lead at smaller properties) – This person ensures orders are correct, the food is in good condition upon receipt, and the first in first out (FIFO) principle is followed for all food items especially highly perishable items such as produce, meat, and dairy.



Culinary Lead – Often the Head or Executive Chef, this person is responsible for developing waste reducing menus, managing reusable overproduction waste, and working with the sales team to receive the most accurate guest count for each event. The guiding principles for all stages of food management are further explained in the toolkit section [Food Waste Prevention Activities: Planning](#).



Service Manager – A leader from the Banquet Team is responsible for the flow of service during an event, providing recommendations when trying to serve large crowds, and can present opportunities they see to improve efficiencies related to buffet set-up and replenishment.



Stewarding & Engineering Lead – A leader within stewarding who can provide expertise on operationalizing the Task Force's goals. The stewarding team will be responsible for separation and measurement of the food waste, disposal, and possibly donation of underutilized food.



Human Resources Lead – The HR lead organizes new employee orientation and drives training during deployment of new staff engagement and awareness campaigns.



PR & Marketing Lead – Communication leads can develop external/guest facing materials that explain the importance of proper food management and the hotel's commitment to providing an amazing guest experience with minimal waste.



Property Owner & Finance Lead – Asset managers from the internal finance team, working in tandem with the property owner, provide a monetary view of the costs and benefits associated with specific changes to operations, such as changes to disposal options for underutilized food, purchasing activities that involve capital costs, and tax exemptions earned from donations. This person can build the business case for tackling a food management initiative.

“Creating greater awareness of food waste as an issue amongst all hotel staff members, in all departments of the hotel, it is the biggest opportunity for us.”

ENGAGING THE TASK FORCE

1. **Host a property kick-off meeting:** Convene all members of the Food Waste Management Task Force to discuss the goals of your food waste prevention initiative and discuss how to roll out the plan to the rest of the property. Sample Agenda for Property Kick-off Meeting can be found in [Appendix A](#).
2. **Develop a plan and set goals:** After the meeting, draft an outline that includes the project goals, project activities, schedule for future meetings, and a plan to clearly communicate project methodology and goals to all relevant operational staff (event sales, culinary, banquets, and stewarding). See [Appendix I](#) for a sample strategic roadmap. Visit HotelKitchen.org for additional resources.
3. **Schedule regular check-ins:** Meet regularly to discuss project success and obstacles. Continue to communicate frequently outside of scheduled meetings. HotelKitchen.org has additional resources to help with weekly Task Force communications.

CASE STUDY

A Leadership Task Force

“I think it always comes down to culture and communication. You have to have the right culture and leadership at a property.”

The Kimpton Hotel Monaco Portland held a two hour cross-functional leadership workshop to create a customized Food Waste Strategic Roadmap. This led to a change in behavior throughout the Hotel Food & Beverage Department, enhanced by having the whole management team co-create a practical plan and shared vision. An early win for the property has been a 20% reduction in ketchup purchases by switching to a smaller ramekin with improved “fill line” instructions from the chef. The roadmap’s implementation has remained active even after the Restaurant/Banquets General Manager left the hotel.

See a template Strategic Roadmap in [Appendix I](#).



CREATING A CULTURE COMMITTED TO FOOD WASTE REDUCTION AND MANAGEMENT

GOALS AND OBJECTIVES

For a food waste reduction strategy to be effective it must be incorporated into everyone's daily activities and routine. It must be an institutionalized process, and it must lead to a culture shift across the organization that alters how food is prepared, handled, and served. This culture shift should ideally start at the top of the organization with a mandate from the General Manager, but can also come from a line cook who notices patterns of overproduction. No matter who takes the initiative, it can help improve the efficiency of operations and save time and money.

Catalyzing this culture shift is a daunting task, but it can be accomplished if a group of

passionate and engaged staff set an example. It will take time, patience, leadership, and perseverance, but it is possible to slowly introduce new operating procedures across all departments that can drive progress and improvement.

ENGAGING STAFF TO CREATE A CULTURE SHIFT

- **Communication is paramount.** Engage staff during morning meetings, during casual conversations on the job, or through more formal training opportunities. (See [Appendix C](#) for more information on training)
- **Continuously reinforce.** Highlight your property's food management goals weekly if not daily, emphasizing targeted strategies specific to staff roles. (See more in [Preventing Food Waste](#).)
- **Encourage collaboration.** Peer learning and collaboration can be more powerful than leadership mandating a change. Provide opportunities for staff to work together in non-traditional teams to inspire new ideas.

- **Highlight and reward successes.** Provide a forum to share stories across departments or on social media and to reward staff who are helping the property achieve their goals. Make it fun!
- **Empower staff.** Encourage staff to actively observe their contribution to property food waste and find opportunities to take initiative for reduction.

"I think it always comes down to culture and communication. You have to have the right culture and leadership at a property."

SURVEY SAYS: Understanding Staff Awareness and Desires

Over 200 staff across 10 hotels were surveyed to better understand the current level of food waste awareness in the industry. Results show that staff overwhelmingly want to do more to prevent food waste at work, but they need more direction from leadership. Overall, staff do not have clearly defined roles to play or incentives in preventing food waste nor do they feel they have a clear understanding of reduction goals. By setting property goals, such as a 10% reduction in organic waste generated over a two-year period, and encouraging training, leadership can tap into existing desires to solve this problem.

CASE STUDY

Innovation in Staff Engagement

The Food Waste Management Task Force is an effective mechanism for building staff awareness and creating a culture that promotes waste prevention.

Terranea Resort saw measurable reductions in waste by activating staff through:

- Removal of trays in employee dining rooms. In an outside study, this action is shown to reduce food wasted on the plate by 30%⁴¹.
- “Trash Duty”, where staff stood at bins during lunch and acted as food waste police to prevent bin contamination.
- Pre-shift food waste task force presentations on food waste reduction and management strategy.
- Clean Plate Challenge Photo Contest where employees photographed clean lunch plates to win a reusable water bottle.
- Exciting message board postings in high traffic areas as a daily reminder of the property’s sustainability efforts.
- Regular communication via staff emails reinforcing behavior and promoting environmental holidays (i.e. Earth Day, World Oceans Day, Coastal Cleanup Day).



WORKING WITH EXTERNAL STAKEHOLDERS

GOALS AND OBJECTIVES

External stakeholders play a key role in preventing food waste and managing overproduction. But as with any stakeholder relationship, balancing varied interests can be a challenge. Although it will add an additional layer to the standard banquet event order (BEO) conversation, maintaining consistent communication to accurately prepare for an event or manage food after an event is essential to success.

KEY EXTERNAL STAKEHOLDERS

The following list includes important external stakeholders in

the flow of food through a hotel.

Event Clients – Clients are focused on successful delivery of event content, providing participants with exemplary food and drink service and an impeccable experience.

Meeting Planners – Meeting planners are tasked with the logistical organization of an event, including menu selection, registration, providing periodic headcount updates to the client and venue, and ensuring sufficient and high quality food is provided to guests – all while staying within budget and timeline.

Hotel Guests & Event Attendees Guests are key partners in reducing food waste in hotels as their presence or absence at mealtimes is a key driver of overproduction.

Donation Partners – Establishing a relationship with a local food recovery organization (e.g., Feeding

America, Second Harvest, Chefs to End Hunger) will help reroute underutilized food for human consumption. More information on establishing this type of partnership can be found in the [Donation](#) section.

Diversion Partners – To manage excess food that cannot be reused or donated, properties can contract with a local organic waste hauler. More information can be found in the [Diversion](#) section.

ENGAGING EXTERNAL STAKEHOLDERS

The following are options to consider when looking for ways to engage key external stakeholders.

Clients/Meeting Planners

- **Sales Conversations.** Train the sales staff to have effective conversations with clients and meeting planners. These conversations should utilize guiding principles for

CASE STUDY | Conscious Consumption Cues

A survey was distributed as guests were seated asking them to reflect on the breakfast buffet, its offerings and service style, as well as the buffet food waste messaging (pictured here). Responses indicated that guests are happy to see food philosophy messages on the buffet and in their rooms and noted that this messaging increased their awareness of the issue. However, some cautioned that the messaging must be carefully crafted as there is the potential for it to be interpreted as “shaming”.

More than half of surveyed guests considered food waste to be a “big” problem and over 70% expressed willingness to submit food preferences or meal RSVPs, if provided an incentive. Additionally, several guests expressed their expectation that hotels participate in food recovery programs to ensure edible food is not wasted. Think about how you can engage your guests

in a healthy dialogue about food waste at buffets and during events tying your corporate or property’s mission and goals to reducing food waste.



“Conscious consumption cues” that incorporated a luxury hotel’s food philosophy were added to the breakfast buffet of a family-friendly resort-style property.

preventing food waste (found in the [Food Waste Prevention Actions: Planning](#) section).

- **Menu Planning.** Encourage meeting planners to specify clients' dietary needs and meal attendance during the registration process to accurately forecast headcount for each meal.
- **Communication and RSVPs.** Set clear expectations for accurate headcounts before and during an event with the goal of minimizing overproduction. Encourage meeting planners to use software that can track meal-by-meal attendance to provide your property with accurate headcounts by meal.
- **Reporting.** Report final overproduction and food utilization results back to the client/meeting planner to inform their future events. Meeting planners predict

food consumption patterns, attendance, and attrition using data trends and experience with similar events – continuing to provide them with data can help them plan for future events at your property. If your property and the guest can save money by eliminating excess food or donating to community partners, it's a win-win for all involved.

Guests

- **Food Philosophy.** A food philosophy is an articulation of how your property, brand and chef value food, which can resonate with guests' personal values and increase brand loyalty (see case study left). Sharing your food philosophy and food waste goals in the buffet area can engage guests while drawing their attention to the amount of food they take and leave on their plate. An audit performed during WWF's demonstration projects showed that plate waste decreased when guests were presented with

such conscious consumption cues at the buffet. Guest surveys conducted by WWF revealed 80% of guests favored or did not mind the use of signage on a buffet that encouraged less wasteful consumption in the face of abundance.

- **Communication Channels.** Consider including your food philosophy on multiple guest interfaces including your website, banquet collateral, on a breakfast buffet, and/or in guest rooms as part of your in-room entertainment video or on a table tent near the room service menu.
- **Meal by Meal RSVPs.** Ask guests to provide updated RSVPs when checking into their room or registering for their event to drive accurate food production numbers. Visit [HotelKitchen.org/Resources](https://www.hotelkitchen.org/resources) for samples. **HK**



05

Separation and Measurement



ESTABLISHING SEPARATION AND MEASUREMENT

GOALS AND OBJECTIVES

Once you have established a Food Waste Management Task Force for your property and identified your external stakeholders, the next step is to develop a separation and measurement scheme¹³. Separating and measuring your food waste is the single most important thing you can do to start preventing future waste. Separation and measurement provides transparency and insights into the largest drivers of food waste so you can start planning for reduction.

STEPS TO IMPLEMENTING SEPARATION AND MEASUREMENT

1. Choose a separation and measurement scheme that fits your needs and budget.
2. Procure and place bins (preferably green for food waste) in appropriate areas of the hotel to capture all waste streams. Keep bin placement permanent.
3. Train and monitor staff on new separation and measurement system.
4. Gather data over the course of a set time period (~2 weeks) to generate both a total food waste and a pound per guest baseline metric.
5. Set reduction goals for overproduction and underutilized food.

Institutionalizing a new separation and measurement scheme takes time – while it took most demonstration project properties between 4 and 6 weeks to establish a system, your property can likely cut this time in half using this toolkit as a guide. For advice on how to overcome the common challenges during the implementation of a separation and measurement system, view [Appendix H](#).

STEP 1: CHOOSING A SEPARATION AND MEASUREMENT SYSTEM

While the type of system you choose will depend on property size, resources (e.g., labor and capital), and goals, remember that getting started on any system is better than continuing to mix food with other waste and sending it to landfill.

Locate where you currently are on the spectrum on page 22 (Figure 2) and consider taking steps to move to the next level. In the descriptions of each step on the spectrum, you will find definitions, instructions, pros and cons for each option, and where to start based on your hotel type.

STEP 2: PURCHASING AND PLACING BINS

Purchasing Bins

After you decide how to separate your waste stream, the next step is adding additional bins to capture food waste. It is important to visually designate, with colors and signage, the difference between bins capturing food (organic) waste, landfill waste and other recyclable waste. Your waste hauler(s) and municipality may have bin requirements or may provide you with bins for use in your operation.

CASE STUDY

Technology-Enabled Tracking

The hotel industry is starting to adopt on-site technologies that allow properties to gather instant food waste measurements creating a daily log of item level waste that can inform business and operational decisions.

While technology-enabled tracking comes at a capital cost, it offers highly actionable operational insights and high levels of return. Properties that have utilized this type of technology have seen 50% reductions or more in food waste and tens of thousands of dollars in savings annually¹².



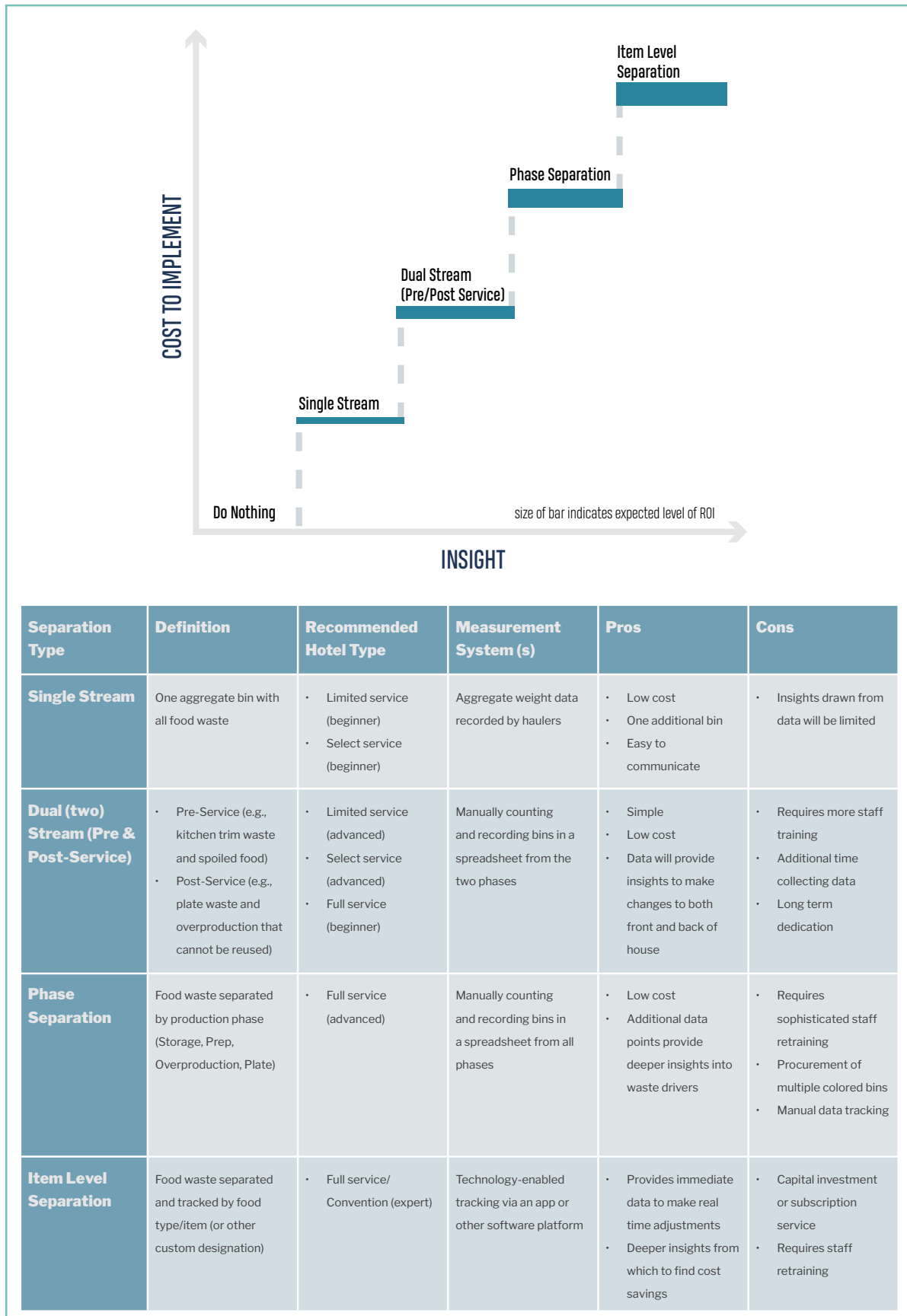


Figure 2 Levels of Separation and Measurement

“It's critical to train the staff. The staff needs coaching and mentoring to build confidence.”

If not, the following are some factors to consider when purchasing food waste bins:

- **SIZE:** Must seamlessly integrate into your operation and be easily handled by staff when full.
- **COLOR:** Should be bright and distinguished as dedicated to collecting food waste or organics. GREEN bins are the industry standard for food waste.
- **LINERS:** Must be compostable.
- **LABELS:** Use labels and signs to indicate bins designated for organics. Sample signage can be found in [Appendix B](#).

Principles for Bin Placement

- ✓ Communicate changes in waste management strategy to all staff before they occur.
- ✓ Place food waste bins near where the waste is being created.
- ✓ Keep them in the same place.
- ✓ Ensure new bins do not disrupt the existing flow of operations.

Implementing these principles may require assessment of other streams and possible downsizing, replacing, or removing bins that are no longer appropriate or needed.

STEP 3: TRAINING STAFF

WWF worked with Lobster Ink, a hospitality learning platform, to create a 5-video training series on Food Waste Management, which is available as a resource for all hotel properties to use. More information on modules can be found in [Appendix C](#). Successful separation and measurement can only be accomplished if staff are aware of the changes being implemented and provided with the knowledge and skills required to adjust to the new separation scheme. Once those two goals are accomplished - reinforce, reinforce, reinforce! Reinforcing proper separation behavior

CASE STUDY | Removing Unneeded Bins

The Sustainability Team at the Fairmont Washington D.C., Georgetown continuously enforced concepts of food waste separation and measurement during WWF's demonstration project. As a result, banquet staff noticed that separating food waste from other waste streams at the buffet breakdown station almost eliminated their need for a general waste bin.

Leadership, once aware, removed the traditional waste bin and routed any remaining landfill waste to the dishwashing area. Removing this bin not only created more space, but it also visually exposed staff and leadership to how much food waste was being generated from banquets. This understanding prompted staff to rethink service strategies including capacity for by-the-minute prep adjustments and an assessment of their 5% standard event overage.

during staff meetings, in employee dining rooms, and during periodic walk-throughs of the kitchen is key to changing behavior and breaking old habits. When contamination is observed in the bins, have positive conversations with staff to identify the reasons for the contamination and what can be done differently going forward.

STEP 4: GATHER BASELINE DATA

Once food is separated, the next step is tracking or measuring the food waste at daily, weekly, or monthly intervals to plot trends and understand the impacts of food waste. To track and quantify your food waste, consider one of the following methods in order of increasing complexity and insights:

- Asking your hauler to provide weights for each month, or week if possible, as most haulers already generate internal reports for clients and most should be providing it to your engineering department.

- Performing daily bin counts, which will provide a daily volume of food waste produced and can be converted to weight by multiplying the size of the bin (in gallons) by 3.8 pounds/gallon¹⁴.
- Using a technology solution that weighs food onsite each day and gathers accompanying data such as reason for the waste and location generated (e.g. Winnow, LeanPath, or a weighing in-vessel digester such as ORCA or BioHiTech).

In addition to gathering the monthly, weekly, or daily weight or volume data, consider tracking your guest counts at the same frequency to normalize the data to a pounds per guest metric that can be compared week over week and month over month.

STEP 5: SET A GOAL

Once your baseline is set, it will be important to set a measurable food waste reduction goal to engage staff on working towards a common, achievable purpose. The goal can start out simple, like committing to effectively separate food waste



from the rest of your waste, and might evolve into a more refined reduction goal as you collect more data. Setting a reduction goal is critical to successful food waste prevention and reduction.

Example goals include:

- In 2018, we will reduce pre-service waste by 15%.
- By 2020, our property will reduce overall food waste by 10%, institutionalize a donation program, and divert 100% of our organic waste away from landfill.

The subsequent sections provide guidance on actions you can take to achieve your prevention and reduction goals. **HK**

CASE STUDY

Impact of Separation

Demonstration project results showed that the act of separating, exclusive of any formal training on food waste prevention, can reduce waste at properties by at least 10%. Separating allows culinary staff to see the quantity of food waste they are generating in the kitchen and the amount returning from the buffets, which, based on interviews with these properties, prompts staff to make changes to their production techniques and portion sizing for certain items. These results are from a limited sample size, but the decreasing trend was seen across multiple properties.



CASE STUDY


Performing an Audit

Performing periodic waste audits, deeper dives into the contents of your food waste and the drivers behind it, can uncover new opportunities to prevent food waste at a hotel. A lunch buffet audit performed at one of the participating properties in WWF's demonstration project showed 46% of the food produced was not consumed. The detailed item level audit results exposed multiple waste prevention opportunities to the Executive Chef, including the opportunity to reduce standard portion sizes for desserts, rolls, and vegetables.

Performing regular audits can provide valuable information on additional ways to optimize food purchased by the property. [Appendix F](#) includes a one page outline on how to perform an audit, which is a much more detailed data gathering exercise than daily or weekly waste tracking.

06

Preventing
Food Waste



Preventing food waste should be top priority; not only will it save your property money, but it will also save valuable resources from being wasted, such as water needed to produce crops, energy for the growth and transport of food, and natural habitat that is converted for agriculture.

GOALS AND OBJECTIVES

A hotel has multiple opportunities to prevent waste along the “flow of food”. Figure 3 shows the key points – plan, handle, and serve – where you can prevent food waste. The goal of this section is to provide helpful tips on how to prevent food waste during the plan, handle, and serve phases of food production.

The tables included on the following pages outline opportunities for prevention at each stage, who must be involved, and a feasibility ranking for each action. For additional challenges and solutions encountered during prevention, please see [Appendix H](#).

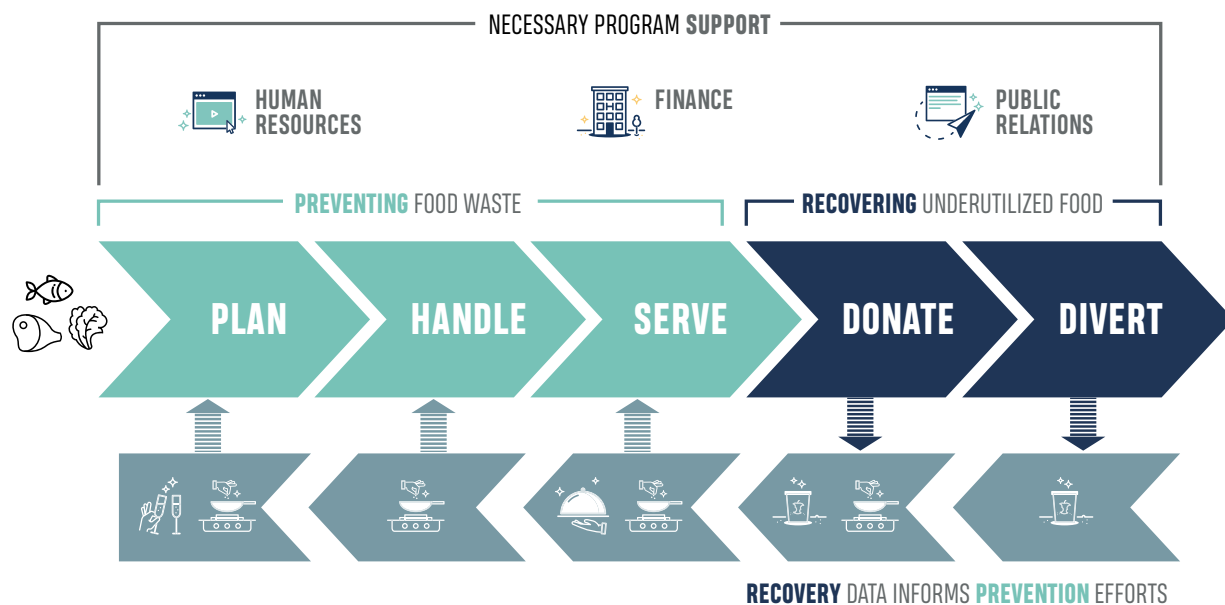


Figure 3 The Flow of Food

CASE STUDY I Impact of Interventions on Waste per Guest










WWF investigated the impact that three interventions had on food waste generation per guest: separation and measurement, staff training, and onsite audits. A 30% reduction in waste per guest resulted at properties that coupled separation and measurement with video training. When audits were added, a 38% reduction in waste per guest was measured. WWF has developed a series of free training videos, hosted on the Lobster Ink platform, that properties can use to train staff in food waste prevention and management. More information can be found in [Appendix C](#) or at Hotelkitchen.org/Training.

PLANNING

PREVENTING FOOD WASTE WHEN PLANNING MEALS

To prevent food waste when planning for meals and events, key actions include data use, menu design, and effectively engaging external stakeholders when sourcing ingredients and planning events.

The following table outlines guiding principles to follow in each stage of meal planning to reduce food waste, listed by ease of implementation. See [Appendix J](#) for a list of 17 strategies to prevent waste before and during events.



<h3>Event Sales</h3> 	<ul style="list-style-type: none">• Communicate your property's food waste reduction and food recovery efforts to clients and guests.• Discuss food waste reduction strategies in every banquet event order (BEO) meeting. A sample script can be found in Appendix D.• Promote plated meals or buffets with stations as an alternative to a traditional buffet.• Include menu of the day or reduced waste menu options in your event menu portfolio and promote these to guests.• Customize menus for attendees using historic or supplied food preference data.	<h3>Event Contracts</h3> 	<ul style="list-style-type: none">• Include food waste reduction and food recovery strategy in event contracts.• Include a final set time for buffets in contracts and BEOs.• Require updated guest counts 10 and 5 days prior to the event, and the day of.• Decrease overage guarantee.• Include an overage menu for unexpected attendance instead of a percentage of overproduction on each dish.
<h3>Data Use</h3> 	<ul style="list-style-type: none">• Ensure accurate guest counts through frequent communication with the event organizer.• Communicate food waste data to the client after the event.• Use historic or provided consumption or food preference data to inform procurement decisions.• Use meal-specific RSVPs to guide production.• Use technology solutions or email to communicate last minute changes in attendance to culinary staff.	<h3>Sourcing</h3>  	<ul style="list-style-type: none">• Work with suppliers that have committed to minimizing food waste.• Double-check inventory before ordering to prevent spoilage.• Evaluate ingredients for alternative sourcing methods to reduce spoilage or prep waste, such as frozen or pre-prepped.• Adjust standing orders based on business volume to reduce possibility of spoilage.
<h3>Waste Reducing Menus</h3>  	<ul style="list-style-type: none">• Use low waste ingredients. Indicate these ingredients with menu icons. See sample icons and ingredient rankings in Appendix G.• Feature “seconds” or “ugly” produce in recipes.• Limit dessert portions, especially during lunches.• Reduce the total number of ingredients you use by cross-utilizing the same ingredients in different preparations. Plan a second use for all edible prep waste.• Reduce food weight produced per cover. Most guests consume about 1.2 lbs. of food per meal.• Prepare overage a la minute or develop a menu of the day or overage menu that can be used across events for unexpected attendance. Suggest all events order the menu of the day.• Develop a reduced food waste event plan using the above concepts and include in event portfolio.		

HANDLING

PREVENTING FOOD WASTE WHEN RECEIVING AND STORING FOOD

Following standard storage management best practices is key to reducing waste from spoilage. Extending the same practices to overproduced food allows it to be donated or reused onsite for future events or employee dining.

The following table outlines specific guiding principles to reduce food waste during receiving and storage phases, listed by ease of implementation

Receiving		Storing	
	<ul style="list-style-type: none"> • Ensure correct items are delivered. • Ensure items received are of expected quality. • Update quality standards to exempt aesthetics and procure “seconds” or “ugly” produce. • Dedicate food waste bins to this area, track waste and conduct monthly audits to uncover and resolve challenges in the receiving area. 		<ul style="list-style-type: none"> • Ensure all inventory best practices are followed including FIFO, labeling and temperature standards. • Dedicate space in storage areas for foods to be donated. • Review food stores monthly and use or donate under-utilized foods. • Create standard labels for prepared food that include use-by date and other information important for its reuse or donation. • Dedicate food waste bins to storage areas, track waste and conduct audits to identify opportunities for waste reduction.



CASE STUDY

Waste Reducing Menus at the Washington Hilton

Developing menus designed to minimize waste both in the kitchen and after service has the potential to decrease food waste by 50% based on results from a demonstration performed in a corporate kitchen. These results prompted the adoption of similar waste reducing menus by the Washington Hilton. The hotel has found that clients and employees alike are engaged around these menus, with the low waste menu items not only reducing waste and associated costs, but also proving to be a differentiator for the Sales Team.

To achieve similar results, consider the following guidelines when developing menus for your banquet packages:



- Use mostly low-waste ingredients (see [Appendix G](#) for an initial ranking of ingredients – menus should strive to maximize the use of ratings 4 and 5)
- Completely use all elements of an ingredient (e.g., roast seeds of squash to use as a garnish for soup or in a salad)
- Cross-utilize ingredients across menu options (e.g., serve sausage for breakfast and include as a topping on pizza for lunch)

Additional materials to help with menu planning and menu sales can be found in [Appendix D](#) and [Appendix E](#).

PREVENTING FOOD WASTE WHEN PREPARING INGREDIENTS AND MEALS

Food waste from meal preparation can be prevented by using reliable data to create appropriately portioned dishes from maximized ingredients.

The following table outlines specific guiding principles to reduce waste when preparing food, listed by ease of implementation.

<p>Prep</p> 	<ul style="list-style-type: none"> • Check updated headcounts before trimming, prepping or firing any food. • Ensure that recipe specifications are accessible and that prep tools are in good condition and are best suited for each task. • Plan a second use for prep waste, like stocks. • Plan a second use for prepped meals in the event of overproduction. • Fire some items a la minute and resist firing overage until necessary. • Encourage prep chefs to share prep waste reduction strategies during staff meetings. • Dedicate a food waste bin to each prep station to identify opportunities for waste reduction. • If possible, set aside food scraps for animal feed. • Use high yield equipment, such as cook & hold technology, to maintain food quality. 	<p>Plating & Portions</p> 	<ul style="list-style-type: none"> • Check updated headcounts before plating food. • Ensure measuring tools are available for accurate portioning. • Adjust portion sizes relative to historic consumption data or observations of overproduction. • Consider alternative display or plating strategies to combat overconsumption on the buffet. • Conduct semi-annual waste audits with menu review to uncover and resolve overproduction challenges.
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CASE STUDY | Reducing Waste with A La Minute Menu Items

Breakfast buffets can be a large source of wasted food, especially high value (monetarily, environmentally, and socially) items such as cold cuts, cheese, and salmon. Based on the chef and servers observations of hotspots for food waste on their breakfast buffet, Hyatt Regency Orlando prototyped an a la minute concept to serving these high value items, specifically

their cold cuts and cheeses. The kitchen prepped 18 cheese and charcuterie plates, kept 17 in temperature-controlled storage, and placed one on the buffet with a conscious consumption cue prompting guests to request a plate from a banquet server.

13 out of 18 prepped plates were ordered, keeping the rest

of the plates food safe and ready to be used elsewhere or to be recovered for donation. This has significantly reduced the amount of these high value items the property is tossing and is having some positive impact on food costs. View [Appendix J](#) for a list of 17 strategies for waste prevention during planning and service.



Existing Display: Serve yourself





Concept Prototype: By order only

SERVING

PREVENTING FOOD WASTE DURING AND AFTER SERVICE

Buffets are the largest culprit contributing to food waste in hotels. This waste can be reduced by strategically setting the buffet, thoughtfully messaging to guests and maximizing donation of unavoidable overproduction.

The following table outlines guiding principles, listed roughly from easiest to most difficult to implement, to reduce waste during service to guests and maximize food recovery after meals. See [Appendix J](#) for a list of 17 strategies to prevent waste when planning and serving buffets. **HK**

<h3>Setting the Buffet</h3> 	<ul style="list-style-type: none">• Check headcount before setting buffets or plated meals.• Display foods horizontally instead of piling for items like breads and pastries.• Serve items in small, individual serving vessels instead of chafing dishes.• Separate mixed items when possible to give guests choice while maintaining freshness.• Use dispensers, jars and dishes with lids to preserve food quality for reuse.• Reduce plate size and shrink serving utensils. Offer small utensils for sample servings at the buffet.• Use temperature controlled vessels to preserve food quality.• Set certain, high value items as a la carte.• Place conscious consumption cues on the buffet to engage guests in waste reduction efforts.• Use service stations at the buffet to control portion size and maintain food quality.	
<h3>During Service</h3> 	<ul style="list-style-type: none">• Put out increasingly smaller chafing dishes and top off or back fill when necessary.• Facilitate communication between banquet and culinary staff to relay buffet supply status and enable a la minute replenishment.• Use cook-chill re-thermalizing systems to maintain food quality for service and maintain food safety for reuse or recovery.	<h3>After Service</h3>  <ul style="list-style-type: none">• Dedicate food waste bins to banquet breakdown stations. Track the waste and enable feedback to culinary on which items went unused, overset or wasted on guest plates. Inform future procurement and meal prep with this data.• Use blast chilling equipment to preserve food quality for reuse or recovery.

CASE STUDY | Reducing Overproduction

One strategy for reducing waste from buffets is to catalogue all uneaten food returning from the buffet to understand how guests are consuming specific items and what changes could be made to minimize this overproduction. At the Kimpton Hotel Monaco Portland, a sous chef noticed significant amounts of potato salad left in buffet serving vessels and on plates. He asked his executive chef and program lead to consider decreasing that item. For future events, the chef cut down the portion size per guest, which resulted in observed reductions in post-service food waste, with no impact on guest experience.

“When we donate food to shelters or food banks we’re not saving costs. When we donate wet waste to pig farms we don’t improve the bottom line. When we compost more, we don’t become more profitable. When we produce less food for an event, we’re more efficient and it affects profitability.”



CASE STUDY | Waste Reducing Buffet Concepts

WWF engaged IDEO, human centered design firm, to prototype strategies for buffet waste reduction at Hyatt Regency Orlando. IDEO and property staff tested various food waste interventions in the event sales process, guest messaging, use of technology, and buffet service standards. Staff were enthusiastic to engage on the topic of food waste and eager to propose opportunities for reduction within their

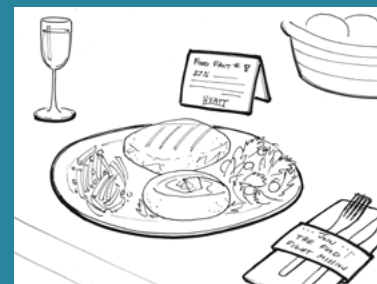
operations. After interviews with meeting planners and event attendees, and three days onsite at a property, IDEO developed 17 solutions to the key drivers of waste during buffet service. These ideas ranged from improvements to the event sales process, to the use of technology for guest messaging, to buffet set standards. To read about all their proposed solutions, see [Appendix J](#).



Phasing Down Vessels



Food Kit 2.0



Conscientious Consumption Cues

07

Recovering Underutilized Food

Once your property has established a separation and measurement protocol and is finding opportunities to prevent waste, it's time to manage the overproduced food that cannot be prevented.

Multiple options exist to make use of these valuable nutrients, rather than sending them to the landfill. We break this down into two categories:

- **Donation** - safe leftover food is channeled to feed those in need, and
- **Diversion** - inedible or unsafe food and organic scraps are disposed of using environmentally preferable options that recover energy or nutrients.

DONATION

GOALS AND OBJECTIVES

All hotel properties should have at least one active community donation partner who will pick up food that is still safe for human consumption, but unable to be reused in-house. [The Bill Emerson Good Samaritan Act of 1996](#) protects businesses from liability when donating food, except in cases of gross negligence. Hotels should feel confident that establishing a food donation program is not only good for business and the environment, but also for the community – and encouraged by law. By donating edible surplus food, your property can help support the local community, preserve the resources that went into making the food, and reduce the amount of edible nutrients sent to compost, landfill, or other end of life solutions. For common challenges encountered during donation and recommendations for resolving them, please see [Appendix H](#).

STEPS TO ESTABLISHING A DONATION PROGRAM

1. Designate a donation lead at your property
2. Identify a trusted and experienced food recovery community partner
3. Develop standard operating procedures for handling food set for donation
4. Inform and train staff on new procedures
5. Gather data and develop a performance report
6. **Optional:** Form a donation alliance with other hotels in your immediate area



STEP 1: DESIGNATE DONATION LEADS

Designate 1-2 staff members (likely from the Task Force, or from Food & Beverage or Culinary Departments) to lead food donation efforts, including

- Establishing and maintaining relationship and communication channels with food recovery partner(s).
- Communicating program intentions to brand or management company.
- Facilitating staff adoption of program logistics.
- Actively monitoring food donation handling and pick-up.
- Collecting and communicating reports on donated food and benchmarking program success.



STEP 2: IDENTIFY FOOD RECOVERY PARTNER(S)

Most large cities have multiple food rescue and recovery organizations that will work with you to schedule pick-ups, draft agreements that further limit liability, and provide you with supplies and guidance on what can be donated. Advice on finding a reliable partner is available from many sources, including: the [United States Department of Agriculture \(USDA\)](#), [Feeding America](#), and [Further with Food](#). When looking for a donation partner, ensure they can meet the following expectations:

- Establish a regular pick-up schedule that fits your food generation schedule
- Provide on-property contacts for urgent matters
- Accept your commonly overproduced food items
- Provide detailed food safety handling practices

CASE STUDY | Donation Benefits

Working with a donation partner can decrease waste hauling costs, improve employee morale, and benefit your local community. Prompted by participating in WWF's demonstration project, Terranea Resort re-established a relationship with [Chefs to End Hunger](#) to donate excess and edible food from banquets.

An extra 30 minutes of staff time per event allowed for the donation of 100 pounds of food from one event to the local community. Donation requires significantly less time and labor than loading their on-site food waste processing machine, and both staff and the community professed excitement about participation.



- Supply appropriate documentation to obtain a tax incentive for your donation, if applicable

Since donation partners have their own needs, it often makes sense to establish multiple partnerships that can fill different needs for your property. For example, one donation partner may prefer weekly pick-ups of only bread or other staple ingredients, while another organization may be nimbler and able to come day of, to pick-up overproduction from large events with little advance notice.



STEP 3: HANDLING OF FOOD DONATIONS

Each partner will have their own requirements for how they prefer to receive food and the type of food they can accept. However, for all donations, you must follow your local food safety standards and any additional standards required by your donation partner for properly cooling down food after an event, storing, and labeling food. When you have one or a few partnerships established, this process will become second nature.



STEP 4: INFORM AND TRAIN ALL STAFF

Staff will need to be trained on the donation organization's specific operating procedures. This can be accomplished through multiple hands-on exercises with relevant staff. While this can add requirements to a staff member's function, most chefs are excited to see their food being used to feed the local community and are happy to take on the task.



STEP 5: GATHER DATA

Track type and quantity of donations by keeping records or collaborating with the food recovery partner, who will often provide their own reports. This allows your property to view trends, understand overproduction drivers, and make further changes to prevent overproduction in future banquets. In addition to volume or weight measures, consider tracking the following indicators of program success:

- Cost savings by month/quarter/year from reduced waste hauling
- Percentage of food donated vs. food procured

Donation Myth Busting

MYTH: HOTELS ARE LIABLE FOR ANY PROBLEMS WITH DONATED FOOD.

BUSTED: The Emerson Good Samaritan Food Act has been in effect since 1996 and protects businesses from liability when donating to a non-profit organization. This Act covers most public and private entities, including hotels and caterers.

To be protected under this Act, donation programs must meet four key requirements:

1. Food must be donated with the honest belief that it is safe to eat.
2. Food must meet all federal, state, and local food safety labeling requirements
3. The receiving organization must distribute donated food to needy individuals without profit.
4. The end recipient must not pay anything of monetary value in exchange for the donated food¹⁵.

MYTH: FOOD CANNOT BE DONATED IF IT IS PAST LABEL DATE

BUSTED: Just because a food is nearing or past its marked date does not mean it is unsafe to eat. Even if an item does not meet all applicable quality and date-labeling standards, donors and distributors can still be protected by the Emerson Act.

For this exception to apply, the food donor must inform the receiving organization of the imperfect condition of the food and the receiving organization must be aware and willing to properly recondition the food for consumption. Thus, any raw, cooked, processed, or prepared edible substance, ice, beverage, or ingredient used or intended for use in whole or in part for human consumption may be donated if it complies with FDA standards¹⁶.

- Percentage of food donated vs. food disposed
- Average weight of food donated per pick-up
- Number of donations weekly/monthly
- Number of staff trained on food recovery best practices

STEP 6: FORM A DONATION ALLIANCE WITH LOCAL HOTELS (OPTIONAL)

Forming an alliance with other local hotels can help overcome common obstacles to food donation. Your property may not regularly have an abundance of food available to donate or local food recovery partners might

prefer higher volume pickups. In cases like these, aligning with other local hotel donation programs can help everyone reach their food recovery goals.

TAX DEDUCTIONS AND INCENTIVES

As a business, your property may qualify for federal tax deductions when you donate food to local organizations that are registered non-profits with the federal government. [The Protecting Americans from Tax Hikes \(PATH\) Act of 2015](#) increased tax incentives for donation, as the law allows for businesses to claim a cost basis of donated inventory

and half of potential profits if the inventory could have been sold for market value¹⁷. It is important to note that hotels can only claim a tax deduction for food that has not already been sold for profit, or considered to be property of the client per banquet contract language, therefore, food that has been prepared as part of a BEO or possibly purchased for an event, but gone uneaten can be donated, but may not be eligible to claim as a tax deduction. To ensure you can claim a tax benefit from food purchased for an event, but not prepared, incorporate language into your contracts that designate your property's ownership of any unprepared food



Example

Earning Tax Deductions Through Food Donation

Imagine a property donated a sack of mixed vegetables that was originally purchased for \$20 (basis value) and would sell for \$80 (full market value) and was owned by the hotel per banquet contract provisions. The expected profit would be \$60, which will be used in equation (b). The enhanced tax deduction entitles the property to deduct the smaller of the following two equations

$$(a) \text{ Basis Value} \times 2 = \$20 \times 2 = \mathbf{\$40}$$

$$(b) \text{ Basis Value} + (\text{expected profit margin} / 2) = \$20 + \$60/2 = \mathbf{\$50}$$

In this case, the enhanced deduction would be \$40. If a property sets up a donation plan where this can occur every week for a year, it would equate to \$2,080 in total deductions. If it could occur daily with leftover ingredients intended for use at large banquets, then it would equate to \$14,600 tax deduction per year, though capped at 15% of the property's taxable income.

DIVERSION

GOALS AND OBJECTIVES

If food cannot be used in the business or recovered for donation, it must be disposed. When food (and its associated inedible parts) is sent to landfill, it gradually decomposes in an environment devoid of oxygen producing methane, a harmful greenhouse gas at least 25 times more potent than carbon dioxide. Methane emissions from landfills account for close to 18% of total methane emissions in the U.S. Alternately, when food is composted, while some greenhouse gases are emitted during decomposition, precious nutrients are returned to the soil, providing benefit for local farms or gardens. Providing vital nutrients back to the land in the form of compost provides multiple forms of environmental benefits including reduction in landfill methane emissions, reduction in synthetic fertilizer use, and improved soil health. Keeping food out of landfills should be a priority for every business!

Several states already have or are considering landfill bans of organic waste¹⁸. It's important to research local guidelines and options first when planning a diversion strategy.

STEPS TO ESTABLISHING A DIVERSION PROGRAM

1. Understand your local regulations and waste disposal requirements
2. Evaluate local options for diversion based on property needs
3. Train staff on any new technology or processes
4. Gather data

STEP 1: UNDERSTAND LOCAL REGULATIONS

The Task Force and/or stewarding staff will be responsible for **assessing local regulations** or guidelines for disposal of food waste by checking local government websites or contacting the local department of waste management.

“If you don't make it easy on your team it is never going to happen.”

Diversion for Animal Consumption

While donation to feed food insecure populations takes priority, further down the chain, there is also significant benefit to re-routing food for animal feed over other diversion strategies. Unlike composting or onsite processing, feeding animals saves (1) disposal resources, (2) methane emissions resulting from landfill disposal, and (3) resources necessary to produce more animal feed.

Animal feed programs can often complement traditional donation programs, as some food that is inedible for human consumption is still appropriate for animals.



CASE STUDY

Example Diversion Regulation

Since 2016, hotel properties in New York City have been required to separate and divert organic waste away from landfill under threat of fines. To comply with these regulations, hotel properties had to quickly locate local haulers that could provide composting or anaerobic digestion services or work with vendors to rent on-site digesters or dehydrators to process waste. As more cities start to pass organic landfill bans, more hotels will be faced with this challenge. To stay ahead, focus first on prevention to minimize the organic waste you generate, then establishing donation partners, and finally investigating diversion options before they become a requirement.

CASE STUDY

Feeding Animals Food Scraps

Prior to participating in WWF's demonstration project, The Hotel Hershey had established a partnership with ZooAmerica to divert food scraps for animal feed. The hotel diverts much of its kitchen waste – lettuce scraps, bread from buffets, and meat trimmings which would not be fit for human consumption – to the zoo, reducing landfill waste.

In addition to zoos, hog farms and animal feed suppliers are other potential outlets for underutilized food not fit for human consumption. Investigate your local options and start a nontraditional partnership to manage underutilized and inedible food scraps. This can form new connections with your community and exciting success stories to engage your staff and guests.

CASE STUDY

Establishing a Compost Program

Establishing a compost program can be daunting as it also requires continual upkeep. However, with dedicated staff and the resources provided in this toolkit it can be accomplished in as few as 4 weeks. The Fairmont Washington D.C., Georgetown had no prior separation system in place when the property joined WWF's demonstration project, however within a month, the property found a local compost hauler that could handle their volume, established a contract, and began separating their organic waste. This was accomplished by a dedicated Steward with help from the property's Sustainability Team. Diversion of food waste has reduced the number of trash compactor pulls the hotel needs by 4 each month, setting up the potential for lower waste bills during future contract negotiations.



STEP 2: EXPLORE OPTIONS AND IMPLEMENT SOLUTION

Once you understand your local regulations, **communicate with existing waste haulers** to determine alternative solutions to landfill or incinerator that meet or exceed any regulations. Existing haulers may offer these services or have insight into other local options for offsite composting or anaerobic digestion.

Explore options for on-site management if there is limited opportunity to haul food waste to dedicated processors. There are several available technologies, some offering enhanced data collection and environmental efficiency, such as:

- On-site composting, which can be used for on-site landscaping or redistributed or sold to staff, guests or communities for use in gardening.
- Digesters, with or without enzymes, which process food waste into greywater and flush to local waste water treatment plants. With this technology, prioritize options that use enzymes to minimize nutrient loading on local waste water treatment plants (remember to check local regulations) and only use equipment that incorporates measurement technology.
- Dehydrators can reduce the volume of food waste by up to 70%, minimizing waste hauling costs.

STEP 3: TRAIN STAFF

Train all relevant staff to separate and track food waste as appropriate. Train stewarding staff, including overnight and temporary staff, to accurately empty and replace bins. This may take several weeks of reinforcement before habits are successfully adopted.

STEP 4: COLLECT DATA

As with donation, collecting data via reports from haulers or on-site management software is essential to assessing progress against goals, understanding continued problem areas, and establishing new goals. This data can contribute to a holistic understanding of your operations and continued areas for improvement. HK

08

Conclusion



Sustainability is not a new consideration for hotels. For years, many hotel chains have addressed water conservation, sustainable seafood procurement, and soap recycling. Your hotel may even have an active “green” team in place. While these teams often acknowledge that food waste is a problem, it’s usually not a top priority or a performance goal. The good news is that food waste is a problem that can be solved – and you can be a part of the solution by changing culture, attitudes and behaviors to encourage thoughtful food consumption.

It starts by understanding the many costs of wasted. This can be achieved by incorporating prevention activities into job descriptions, requiring training during the onboarding process, and continually reinforcing waste reduction as a cultural norm. In many food service operations, there is little recognition of the environmental impact of food production and waste; food is merely a line item or expendable amenity. By addressing food waste, you can save money and time, improve staff loyalty and morale, and contribute to your local community, while simultaneously reducing global resource consumption, improving soil health, and reducing greenhouse gas emissions. Reducing food waste is a major step forward toward shrinking humanity’s ecological footprint.

As our demonstration projects have shown, this attitude and behavioral shift can be challenging, but it can become a new cultural norm. It requires commitment from senior leadership to the newest employee. Reducing food waste must be part of the cultural identity of the property, an identity that constantly influences staff behavior as new employees enter and experienced employees move to new opportunities.

This new culture starts with a fierce commitment to a daily **PREVENTION-FIRST** mindset. Both financial and environmental benefits¹⁹ are magnified when food waste is avoided. When prevention and reuse within a hotel are not possible, **DONATION** should be a consistent option, one that also builds stronger communities. Finally, all food that cannot be prevented or donated should be **DIVERTED** away from landfill so it can become energy or nutrients for soil.

The resources and tips provided in this toolkit will help you get started, set goals for your property, and develop a successful food management strategy that fits your hotel’s operations. Saving food saves energy and water and preserves wildlife habitat. It also increases profits and can help battle food insecurity in your community. We encourage you to begin today and join the fight against food waste! **HK**

09

GLOSSARY

A LA MINUTE

Prepared or set to order, not prepared or set in advance.

CONSCIOUS CONSUMPTION CUES

Messages on buffets or dining tables that engage guests in the hotel or event's commitment to reducing food waste.

DIVERSION

Routing food waste to an organics hauler or managing food waste on-site by use of a processor. Any effort that keeps food waste out of landfills and incinerators.

FOOD LOSS & WASTE PROTOCOL

Developed by the World Resource Institute, a multi-stakeholder effort to develop the global accounting and reporting standard for quantifying food and associated inedible parts removed from the food supply chain.

FOOD MANAGEMENT

All actions involved in the handling of food and food waste.

FOOD MANAGEMENT STRATEGY

Stated strategy, including separation and measurement, of managing food and food waste at a property.

FOOD PHILOSOPHY

A hotel's motto surrounding the type of food they serve, why they serve it, and how they prepare it.

FOOD RESCUE/RECOVERY/DONATION

Donating any underutilized food and food scraps for consumption by people or animals.

FOOD REUSE

Repurposing food that was not used for its intended purpose to otherwise feed guests or property staff on-site.

FOOD WASTE

Any food that is not used for its intended purpose of feeding guests.

FOOD WASTE PREVENTION

Ensuring that the maximum amount of purchased food is used for its intended purpose of feeding guests.

SEPARATION AND MEASUREMENT

The act of separating food waste from other waste streams and measuring how much is produced.

10

APPENDICES



APPENDIX A: SAMPLE SCRIPT

The following agenda outline and script can be used to introduce key leadership to your hotel's food waste reduction effort and each team member's role in the initiative.

MEETING GOALS

- Introduce food waste reduction initiative's objectives
- Discuss possible food waste reduction goals
- Review project timeline and immediate next steps
- Review individual department responsibilities
- Discuss how to implement food waste separation and tracking

ATTENDEES & PROGRAM RESPONSIBILITIES

General Manager	Sponsor and advocate participation of hotel staff
HR Director	Deliver staff surveys, schedule trainings, and develop project communication
Executive Chef	Separate and track pre-service food waste
Head of Service/Catering Staff (could be F&B Director)	Encourage staff support of tracking activities
Head of Stewarding	Separate and track post-service food waste
Sustainability Director (if applicable)	Program Support

KEY TALKING POINTS (ADJUST AS NEEDED)

Introduction. We will be implementing a food waste reduction initiative over the next months with the goal of creating a food waste prevention culture at our property. This effort will require the tracking of food waste production data, like the Weight Watchers model for weight loss, to track our reductions over time. We will separate our food and organic material from other waste streams, and monitor its production in the various areas of food service. Once our separation and measurement system is running smoothly, we will implement a series of prevention actions to improve efficiency and cost savings across our operations.

Separation. We will be using green bins to capture food waste across the hotel. This week, report the number of bins currently capturing any food waste to management so that green bins can be procured and installed next week. Storage, culinary, service and stewarding teams must be briefed on this process change and our new separation strategy prior to green bin installation next week.

Tracking. At the end of each work day OR as bins are emptied, stewarding staff will weigh bin contents OR count the number of full bins by bin size and record. These numbers will be delivered daily to the Food Waste Management Task Force or Data Manager, who will track them using a simple excel sheet or online data management tool, if available. We request that Head of Stewarding select stewards to be responsible for this data recording task. These individuals should be put in contact with the Task Force or Data Manager to determine the best way to manage and transfer data. (OR describe technology-enabled tracking strategy)

Communications. HR will distribute updates to staff twice a month to show the progress our property is making.

Next Steps. Our immediate next step is to develop a fully functional separation and measurement system to monitor our production of food waste. Over time this data will help us find opportunities to improve our operations and prevent more waste. Please encourage your teams to look for these opportunities in their day to day tasks and report them back to you.

APPENDIX B: SAMPLE POSTER



APPENDIX C: TRAINING VIDEO SERIES

LOBSTER INK VIDEO TRAINING SERIES

At the beginning of the demonstration project, Lobster Ink, a hospitality learning platform, worked with WWF to create a 5-video training series to introduce staff members to the food waste epidemic, the concept of a food waste management program, and the basic principles of separation and measurement and food waste prevention.

LESSON 1: INTRODUCING FOOD WASTE MANAGEMENT

Introduces the scope of the food waste problem and its environmental context. Outlines the topics of the video series and emphasizes the focus on preventing food waste.

LESSON 2: BUILDING YOUR FOOD WASTE MANAGEMENT TASK FORCE

Explores the roles of each Task Force member and the benefits they provide to program development and implementation.

LESSON 3: MEASURING YOUR FOOD WASTE PROBLEM

Emphasizes the role of data collection in setting goals and preventing food waste. Explains the areas in a hotel that create food waste and ways to capture and track this waste through a two-stream separation scheme or technology-enabled tracking.

LESSON 4: 6 STEPS TO PREVENT PRE-SERVICE FOOD WASTE

Explains total ingredient utilization concepts and offers recommendations to prevent food waste during event sales, menu development, purchasing, storage, and food preparation stages.

LESSON 5: MANAGING FOOD WASTE POST-SERVICE

Presents options to recover underutilized food through donation and diversion.

The Lobster Ink Training series can be accessed at HotelKitchen.org/Training, which will redirect you to Lobster Ink's website to register for the training.



APPENDIX D: WASTE REDUCING MENU, GUIDING PRINCIPLES

WASTE REDUCING MENU THEORY

Across the hospitality industry, the primary goal is to satisfy guest needs and desires, which can translate into an overabundance of food. The downside of this overabundance is that it can result in food waste - both during ingredient preparation and in the form of leftover food on guests' plates or on the buffet.

The Waste Reducing Menu intentionally creates opportunities for all ingredients to be used, including leftover ingredients, while still offering high-quality food to the guest. And, any safely preserved leftover food can be donated after service. The key to successfully reducing waste through menu design is using ingredients multiple times across brunch and lunch menus. Additionally, most ingredients in the brunch menu aren't mixed with other ingredients or heavily cooked, which makes it easier to repurpose them in the lunch menu, resulting in little, if any, overproduction.

Ingredients are carefully chosen based on our "Produce Yield Ranking Tool," (See [Appendix G](#)) which rates ingredients based on how much is typically considered edible (e.g., food). For example, a tomato is a 5 - which means the entire product is edible. Strawberries are a 4 - which means that it's mostly edible except for a small portion, the leaves and stem. All the fruit and vegetables in the Waste Reducing Menu are a 4 or a 5, which encourages hotel chefs to reduce trim by using the entire product.

This menu concept will require a team effort with participation from the sales staff, the banquet staff, culinary staff, stewarding staff, and food and beverage staff. It is an imperative that all parties are trained on their role in implementing this type of menu. Here are a few of the key responsibilities for each of these roles:

- Catering Sales staff - selling the menu, explaining the additional strategies, and working on accurate guest counts at all stages
- Culinary staff - brainstorming ideas, working with sales staff to get accurate numbers for ordering, prepping, and firing
- Banquet staff - managing the food service and flow to ensure abundant appearance on buffets with minimal post-service waste, shutting down buffets when required during service, and consolidating trays

- Stewarding staff - working with the culinary staff to salvage all food that can be recovered either for donation or for reuse during lunch

STRATEGIES BEYOND THE MENU THAT REDUCE WASTE

While trim and kitchen waste can be a problem for a large food service establishment, it is only half of the puzzle. The client and the guests can also do their part to help the hotel prevent and reduce food waste from banquet events.

- **Headcount:** One of the primary ways to prevent food waste from an event is to have an accurate guest count prior to food being ordered, but especially before food is prepped and served. When speaking with clients about this menu, reinforce the need for an accurate guest count at each stage in the production process. Key points for waste reduction where the most accurate numbers are needed include: number of days in advance for accurate ordering, number of days required for accurate prepping, and day of changes to drive the amount that is fired.
- **Guest Preferences:** In addition to accurate guest counts, understanding guests' food preferences can also prevent common sources of food waste from a buffet. A few items to discuss with the client may include:
 - > Bread and rolls - do you need to supply enough for every guest or will there likely be a portion who do not eat carbohydrates or are gluten free or low carb?
 - > Desserts - for a lunch buffet will guests want large desserts or are smaller bite size options better? Our audits have shown that desserts at lunch are often a large source of overproduction due to the use of a very generous portions per guest. Chefs can consider decreasing the dessert portion size for lunch.
- **Service Style:** The way the food is served can also impact the amount of waste generated. Consider discussing the following non-traditional buffet set-ups with your guest:
 - > **Stations** - This controls the amount of food exposed to guests, minimizing plate waste and allowing for more reuse or donation post-service since the food was not exposed

to potential food safety risks. It requires more staff and can be slower; trade-offs should be discussed with the client.

- > **Hybrid buffets** – A portion of the meal may be served plated and a portion may be served via buffet.
- > **Buffet replenishment** – Discuss with the client how the buffet service and replenishment should run to minimize overproduction and over-service resulting in unrecoverable food. Propose the following options:
 - » Decrease the number of lines to consolidate trays, or, if more buffet lines are preferred use smaller dishes and consolidate pans as they are brought to the back of the house for replenishment
 - » Using smaller portions and pans as service moves along to create a look of abundance with less food
 - » Ask when buffet staff can stop replenishing trays based on pace of service and how many people have already eaten
- **Donation:** When prevention is not possible, discuss with your clients your intention to donate any food that is over produced and still food safe to serve.

Consider the following resources when looking for a partner:

- > Feeding America
- > Further with Food
- > Food Donation Connection
- > Food Rescue US
- If clients have concerns over liability, remind them that the **Bill Emerson Good Samaritan Food Act** protects your business from liability when donating to a non-profit organization.
 - > Requirements: (1) The food must be donated to a nonprofit organization in good faith, meaning that the food must be donated with the honest belief that it is safe to eat. (2) The food must meet all federal (U.S. Food & Drug Administration), state, and local quality and labeling requirements, even if it is not readily marketable due to appearance, age, freshness, grade, size, surplus, or other conditions. (3) The nonprofit organization that receives the donated food must distribute it to needy individuals without receiving funds. (4) The end recipient must not pay anything of monetary value for the donated food.

APPENDIX E: SAMPLE WASTE REDUCING MENUS

SAMPLE WASTE REDUCING MENU INTRODUCTORY TEXT

In the United States alone, we waste approximately 63 million tons of food. About 40% of that comes from consumer-facing businesses, like hotels. This means we're not only wasting food - we're also wasting resources, water, and energy and simultaneously, emitting more potent greenhouse gases that harm the environment.

[HOTEL X] is doing its part by developing a waste reducing menu that uses all edible parts of fruits and vegetables and uses other ingredients that are easily repurposed or donated at the end of an event.

This menu will be prepared with thoughtful consideration for your event attendees' experience and with an eye towards eliminating unnecessary food waste. However, menu creation only addresses one

aspect of food waste. [HOTEL X] encourages you to discuss with our event staff other strategies we can all employ to reduce food waste and improve event sustainability.

Note: The ranking (1 - 5) indicates yield efficiency for all **produce** items - higher ranked items create less organic waste in the kitchen.

WASTE REDUCING BRUNCH BUFFET MENU

Breakfast Sandwich Bar:	Watermelon (5)
• Brioche bread	• Toppings: Pecans,
• Multi-Grain Bread	Almonds, Sunflower seeds
• Tomatoes (5)	Additional Items:
• Red onions (4)	• Potato Hash (5)
• Seared mushrooms (5)	Pastries:
• Greens: Braised kale (5), Spinach (5)	• Berry Muffins
• Cheeses: Cheddar, Goat cheese	Beverages:
• Spreads: Sunflower butter, Cream cheese	• Coffee
• Proteins: Smoked Salmon, Soft scrambled eggs, Bacon, Sausage	• Teas: Summertime flower tea blends or berries tea blends
	• Selection of fruit infused beverages
Parfait Bar:	
• Yogurt	
• Fruits: Strawberries (4), Blueberries (5), Raspberries (5),	

WASTE REDUCING LUNCH BUFFET MENU

Soups:	Sandwiches:
• Watermelon Gazpacho (5)	• BLT Sandwich: Bacon, Lettuce (5), Tomato (5)
• Sausage, Kale (5)	• Brioche (Optional: Cheddar)
• Black Eyed Pea Soup (Optional: shredded cheddar)	• Kale and Hummus Sandwich: Kale (5), Hummus, Pickled Onions (4), Thinly sliced multi-grain bread
Salads:	Hot from the Buffet
• Mixed Greens Salad: Mixed Greens (e.g. spinach, lettuce (5), Pickled Watermelon Rind, Goat cheese, Toasted almonds, Bacon Vinaigrette	• Quinoa Stir Fry: Egg, Onion (4), Fried Garlic (4), Mushrooms (5), Kale (5)
• Caesar Salad: Kale (5), Tomato (5), Sliced onion (4), Croutons (brioche), Caesar dressing	Desserts:
• Smoked Salmon and Potato (5) Salad	• Mixed berry Cobbler, Top with candied pecan
	• Bread Pudding: Made with brioche bread, Top with Crème Chantilly and berries (5)

APPENDIX F: FOOD WASTE AUDIT GUIDE

STEPS TO A FOOD WASTE AUDIT

STEP 1: DEVELOP GOALS FOR YOUR AUDIT

- Developing goals will help guide your classification system and the type of audit you should perform
- Goals could include:
 - › Determine my largest driver of food waste
 - › Determine my largest volume of food waste

STEP 2: GATHER MATERIALS

For most audits, you will need:

- A large space/table for sorting
- Buckets for each category
- A scale
- Gloves, other protective outerwear
- Samples (bags of food) to measure from every outlet (e.g., banquet kitchen, restaurant) and tagged by outlet. For more details on a sampling plan refer to the [Food Loss and Waste Protocol \(FLW\)](#): Appendix A, Section A2
 - › Samples should include food that is both fed to guests (e.g., plate waste) and not fed to guests (this would include plate and prep materials, sent to any destination, including for animal feed, composted, or poured down the drain)

STEP 3: SORT AND SEPARATE FOOD WASTE

Use the goals you outlined in Step 1 to determine the categories you would like to sort the food waste into. The FLW Protocol has additional suggestions

on categories (e.g., food versus inedible parts). For sorting efficiency, lightweight packaging can remain on food, but remove heavier packaging. Examples of categories for sorting include:

- Plate waste
- Spoiled food (e.g., over seasoned food, moldy produce, expired milk)
- Still edible food
- Inedible parts of food (e.g., pits, bones, rinds)

STEP 4: WEIGH AND RECORD

Gather all bags or bins of underutilized food by category (e.g., restaurant outlet or location of waste). Bags and bins should include food waste from plate and prep material that would be sent to any destination, including for animal feed, composted, or poured down the drain). Weigh each category and make notes on reasons for waste (if possible to discern), type of waste and any other comments that will help inform strategies for prevention using the audit results. Take detailed notes and photos of the piles to help you remember what was in each category and why it likely ended up there. Consider doing occasional guest surveys to better inform the reasons for waste.

STEP 5: ANALYZE

Use the recorded results to analyze how standard operating procedures (SOPs) along all stages of the flow of food are contributing to waste, and take steps to update these SOPs to minimize overproduction. Instructions on how to scale your results to estimate the scope of the issue at your property can be found in the FLW Protocol: Appendix A, Section A3.

Here is a sample table that can be used for tracking the food waste:

[illegible]

APPENDIX G: PRODUCE YIELD RANKING TOOL

PRODUCE YIELD RANKING TOOL

5	Ingredient is entirely edible and versatile.
4	Ingredient is entirely edible and versatile, the part(s) that is/are typically discarded could be used, but may not add value to a dish.
3	Ingredient has part(s) that are NOT edible and are challenging to repurpose, but what is edible is versatile.
2	Ingredient has part(s) that are NOT edible and challenging to repurpose, and the edible part(s) are not versatile.
1	Ingredient is mostly INEDIBLE and challenging to repurpose.

THIS RUBRIC IS BASED ON:

- How much of an ingredient is edible,
- How versatile the ingredient is, and
- How much value it will add to a dish and the guests' dining experience.

VEGETABLES			
Ingredient	Score	Reasons	Recommendations
Acorn Squash	5	<ul style="list-style-type: none"> • The entire ingredient is edible, including the skin and seeds. • Compared to other squash, the skin of acorn squash is typically thin and delicate. • It's simple and easy to cook. 	<ul style="list-style-type: none"> • Seeds can be toasted and eaten like pumpkin seeds. • Could be used as an edible bowl (like a bread bowl). • SAMPLE DISH: Rice pilaf, garnished with toasted acorn squash seeds served in an acorn squash bowl
Artichoke	2	<ul style="list-style-type: none"> • Most of the artichoke is not edible and would be challenging to repurpose. • Leaves can be cooked and eaten, but the yield is very low; so it would not add much value to a dish. • The heart of the artichoke is the only true edible part. 	
Asparagus	5	<ul style="list-style-type: none"> • The entire ingredient is edible, but yield depends on quality. • The thick ends that are lighter in color should be snapped off and can be repurposed. • Does not need to be peeled - the skin and leaf sheaths are edible. 	<ul style="list-style-type: none"> • SAMPLE DISH: Spring asparagus and pea risotto or soup using the ends. • REDUCTION TIP: If you choose to peel asparagus, use the peel to make soup or immediately emerge the peelings into cold water with ice. The peelings will curl and can be used as a garnish. The asparagus curls can enhance the aesthetics of a dish and tie it together. Another alternative is to use a paring knife to remove the leaf sheaths.
Beets	5	<ul style="list-style-type: none"> • The entire ingredient is edible including the skin and leaves 	<ul style="list-style-type: none"> • SAMPLE DISH: Beet green salad or sautéed beet greens.
Bell Peppers	4	<ul style="list-style-type: none"> • Entire ingredient is technically edible • The seeds and ribs are bitter raw and even if repurposed would not add value to a dish. 	<ul style="list-style-type: none"> • REDUCTION TIP: Do not hack off the tops and bottoms, perfectly edible and delicious flesh is lost. If you must consider saving them for a salsa or other side.

VEGETABLES

Ingredient	Score	Reasons	Recommendations
Broccoli	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the leaves and stalks. The ingredient is easy to prepare and versatile. 	<ul style="list-style-type: none"> SAMPLE DISH: Roasted broccoli stalks or broccoli slaw using stalks. SAMPLE DISH: The leaves can be sautéed or used in a pesto. REDUCTION TIP: Unless the stalk is going to be eaten raw, it does not need to be peeled.
Brussel Sprouts	4	<ul style="list-style-type: none"> While the entire ingredient is technically edible, the stalk is difficult to prepare, and even if you did cook it, the stalk would not add much value to a dish. Sprouts and leaves are completely edible and easy to prepare. 	
Butternut Squash	4	<ul style="list-style-type: none"> The entire ingredient is edible, including the skin and seeds. The flavor and texture of the skin, depend on its quality. Typically, the bigger the squash, the thicker the skin. If the skin is really thick, it may still be difficult to chew even if it is cooked. 	<ul style="list-style-type: none"> SAMPLE DISH: Cut the squash into steaks and grill or roast them. SAMPLE DISH: Make butternut squash soup or a puree with toasted seeds. REDUCTION TIP: Keep the peel to make a broth or stock. Please note: making stock or broth will take up space in the walk-in if it is not going to be used immediately. REDUCTION TIP: Often times, butternut squash are cut into medium-sized dice, which can result in a lot of trim. If you are going to cut the squash into dice, use the trim to make a puree or soup.
Cabbage	4	<ul style="list-style-type: none"> The entire ingredient is edible, core and outer leaves, included. The outer leaves are tough to eat, and the core will require additional cooking. 	<ul style="list-style-type: none"> REDUCTION TIP: Use the outer leaves of a cabbage to line steamer baskets for dumplings. SAMPLE DISH: Stir fry with cabbage core and braised cabbage core.
Carrots	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the tops and greens. Carrots are a very versatile and useful ingredient. 	<ul style="list-style-type: none"> SAMPLE DISH: Pesto from carrot tops and greens. REDUCTION TIP: Save trim waste from julienning, small dicing or brunoising and use for a puree, carrot soup, or mirepoix.
Cauliflower	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the leaves and stalks. The ingredient is easy to prepare and versatile. 	<ul style="list-style-type: none"> SAMPLE DISH: Braised or sautéed cauliflower leaves. REDUCTION TIP: The stalks and core could be added to a stir fry or used for cauliflower soup.
Celery	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the tops, bottoms, and leaves. The ingredient is versatile and easy to prepare. 	<ul style="list-style-type: none"> REDUCTION TIP: Use leaves as garnish and slice the tops and bottoms and use as mirepoix, add to salads, put in stews or pot pies. REDUCTION TIP: If you choose to peel celery, use the peel to make soup or immediately emerge the peelings into cold water with ice. The peelings will curl and can be used as a garnish.

VEGETABLES

Ingredient	Score	Reasons	Recommendations
Chard	5	<ul style="list-style-type: none"> The entire ingredient is edible and versatile, including the stems. 	<ul style="list-style-type: none"> SAMPLE DISH: Pickled chard stems or deep fried chard stems. SAMPLE DISH: Chard salad, gratin, and/or pasta.
Collards	5	<ul style="list-style-type: none"> The entire ingredient is edible and versatile. Collards can stand up to long cooking times, so you can leave the stems on. 	<ul style="list-style-type: none"> SAMPLE DISH: Braise or blanch collards, or eat them raw or use the collards as wraps.
Corn	3	<ul style="list-style-type: none"> Parts are inedible and/or challenging to repurpose The corn silk can be repurposed and has a lot of health benefits. Leftover corn cob and corn husks are not edible but can be repurposed. 	<ul style="list-style-type: none"> REDUCTION TIP: Corn silk can be dried and used to make tea. REDUCTION TIP: Leftover corn cob can be used to make flavorful stock and soups. Please note: making stock or broth will take up substantial space in the walk-in if it is not going to be used immediately. REDUCTION TIP: Corn husks can also be used instead of cheesecloth to bundle herbs and aromatics.
Eggplant	4	<ul style="list-style-type: none"> The entire ingredient is edible, but the leaves are not very flavorful; so they would not add much value to a dish. The ingredient is very versatile and used in a variety of cuisines. 	<ul style="list-style-type: none"> REDUCTION TIP: If you plan on cutting the eggplant into dice cuts, use the trim to make an eggplant puree, which can add sweetness, color, and texture to a dish.
Fennel	4	<ul style="list-style-type: none"> The entire ingredient is edible, but the bulb is the most versatile part of fennel. The stalk and fronds are edible, but require a lot of time and space to repurpose. 	<ul style="list-style-type: none"> SAMPLE DISH: Fennel bulb sandwiches, fennel gratin, and fennel salad. REDUCTION TIP: Use the stalks to make broths and infused oils. REDUCTION TIP: Use the fronds as a garnish.
Garlic	4	<ul style="list-style-type: none"> The entire ingredient is edible. The wrappers are edible but are challenging to repurpose and would not add much value to a dish. 	
Green Beans	4	<ul style="list-style-type: none"> The entire ingredient is edible and versatile. The ends are removed because they are tough and fibrous and are still difficult to eat even after they're cooked. 	
Kale	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the stems. 	<ul style="list-style-type: none"> SAMPLE DISH: Fermented or sautéed kale stems. SAMPLE DISH: Risotto with finely chopped kale stems.
Leeks	4	<ul style="list-style-type: none"> The entire leek is edible, however, the smaller white and light green parts of the leek are typically desired, and the rest is discarded. 	<ul style="list-style-type: none"> SAMPLE DISH: Break down the tough leek greens vertically, chop them into bite size pieces, and stir fry them with minced pork and aromatics. REDUCTION TIP: Flash fry the roots and use them as toppings on salads or in sandwiches and burgers.

VEGETABLES

Ingredient	Score	Reasons	Recommendations
Lettuces	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the bottoms. 	<ul style="list-style-type: none"> REDUCTION TIP: Instead of throwing out the bottoms, shred them and use them as a topping on mexican dishes.
Lima Beans	2	<ul style="list-style-type: none"> The pods of lima beans are inedible and challenging to repurpose. Removing lima beans from their pods is time consuming. 	
Mushrooms	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the stems. 	<ul style="list-style-type: none"> REDUCTION TIP: If you remove the stems of mushrooms, chop them and cook them in pasta sauces, stuffings, noodle dishes, or vegetable pate.
Okra	5	<ul style="list-style-type: none"> The entire ingredient is edible, including seeds, stem, and leaves. 	
Onions	4	<ul style="list-style-type: none"> The entire ingredient is edible, but onion skin is challenging to repurpose and would not add much value to a dish. 	
Peas	4	<ul style="list-style-type: none"> The leaves, stem, and tendrils of a pea plant are all edible. The pods of peas are tough and challenging to repurpose. 	<ul style="list-style-type: none"> REDUCTION TIP: The leaves, stems, and tendrils can be stir fried with a little broth or added to soup.
Potatoes	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the skin. 	<ul style="list-style-type: none"> REDUCTION TIP: Consider deep frying the skin and using it as a garnish.
Pumpkins	4	<ul style="list-style-type: none"> The entire ingredient is edible, including the skin and seeds. If the pumpkin is young and small, it can be a versatile ingredient. 	<ul style="list-style-type: none"> REDUCTION TIP: Toast the pumpkin seeds, use it as a garnish or in crackers made in-house. SAMPLE DISH: Roasted young pumpkin; roasted pumpkin ravioli.
Radishes	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the skin, tops, and greens. 	<ul style="list-style-type: none"> SAMPLE DISH: Chimichurri made with radish leaves. REDUCTION TIP: If you're going to peel the radish, save the peels and pickle them.
Spinach	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the stems. 	<ul style="list-style-type: none"> REDUCTION TIP: If you remove the stems, cook them in pasta, sauté them, or add them to a smoothie.
Summer Squash	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the skin and squash blossoms. 	<ul style="list-style-type: none"> SAMPLE DISH: Fried squash blossoms.
Turnips	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the skin and leaves. 	<ul style="list-style-type: none"> SAMPLE DISH: Raw young turnips slaw. REDUCTION TIP: Sauté the turnip leaves.

FRUITS

Ingredient	Score	Reasons	Recommendations
Apples	4	<ul style="list-style-type: none"> The entire ingredient is edible, skin, seeds and “core” included. The seeds can be repurposed, but it would not add much value to a dish; and in large quantities, the seeds are poisonous. 	<ul style="list-style-type: none"> REDUCTION TIP: Use Bruised Apples As Natural Sweeteners, In Pastries, And/Or In Smoothies/Juices. REDUCTION TIP: Remove Only The Seeds, And Use The Entire Apple. Removing The Seeds Does Not Take Much Longer Than Removing The “Core,” As Cooks Traditionally Do. REDUCTION TIP: If The “Core” And Peel Are Going To Be Removed, Use It To Make Cake Or Vinegar. The Peels Can Also Be Used To Make Tea.
Avocado	3	<ul style="list-style-type: none"> Avocado skin is not edible. However, the flesh and seed are edible. The seed is edible but only in small quantities, and it would be challenging to repurpose in a kitchen. 	<ul style="list-style-type: none"> SAMPLE DISH: Consider Using In Gelato Or Chocolate Mousse. REDUCTION TIP: Be Sure To Fully Scrape The Inside Of The Skin. The Darker-Green Flesh Just Underneath The Skin Is Edible And Extremely Healthy.
Bananas	4	<ul style="list-style-type: none"> The entire ingredient is edible, including the peel, but the peel can be challenging to repurpose. The banana flesh, which is called the “pulp” is a versatile ingredient. 	<ul style="list-style-type: none"> REDUCTION TIP: If Working With Organic Bananas, The Peel Can Be Used As A Wrap To Steam Food, Or As A Waterproof Serving Dish. They Peel Can Also Be Added To Smoothies. REDUCTION TIP: Caramelize Overripe Bananas, Use Them To Make Gluten-Free Pancake Batter (Just Eggs And Bananas), Or Add To Smoothies.
Blackberries	5	<ul style="list-style-type: none"> The entire ingredient is edible, and it is a versatile ingredient. 	
Blueberries	5	<ul style="list-style-type: none"> The entire ingredient is edible and is best used in desserts, pastries, breakfast dishes. 	
Cantaloupes	3	<ul style="list-style-type: none"> Cantaloupe skin is not edible, but the flesh and seeds are. The seeds are edible and could be roasted but may not add much value to a dish. 	<ul style="list-style-type: none"> REDUCTION TIP: Roast The Cantaloupe Seeds. Use Them As A Garnish Or In Pastries.
Cherries	3	<ul style="list-style-type: none"> The stem and pits of cherries are not edible. 	
Cucumber	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the skin and seeds. 	<ul style="list-style-type: none"> SAMPLE DISH: Grilled Cucumbers For Those Reaching The End Of Their Shelf Life. REDUCTION TIP: If You’re Going To Peel/And Or Deseed Cucumbers, Brine Them Or Add Them To Stir Fry.

FRUITS

Ingredient	Score	Reasons	Recommendations
Grapes	5	<ul style="list-style-type: none"> The entire ingredient is edible. 	
Honeydew	3	<ul style="list-style-type: none"> Honeydew skin is not edible, but the flesh and seeds are. The seeds are edible and could be roasted but do not add value to a dish. 	<ul style="list-style-type: none"> SAMPLE DISH: Roasted As A Garnish Or In Pastries.
Citrus: Lemons, Limes, Oranges	4	<ul style="list-style-type: none"> The entire ingredient is edible, including the peel, pith, and seeds. The pith can be bitter, and the seeds can be challenging to repurpose. 	<ul style="list-style-type: none"> REDUCTION TIP: If You're Going To Remove The Peel And Pith, Zest The Fruit To Get Another Use Out Of It And Add Flavor To A Dish. SAMPLE DISH: Candied Citrus - Thinly Slice The Whole Fruit, Candy The Slices, And Add Them To Desserts.
Peaches	3	<ul style="list-style-type: none"> The pit is not edible and is challenging to repurpose. The rest of the peach is edible, including the skin. 	
Pears	4	<ul style="list-style-type: none"> The entire ingredient is edible, skin, seeds and "core" included. Seeds can be repurposed, but do not add value to a dish; and in large quantities, the seeds are poisonous. 	<ul style="list-style-type: none"> REDUCTION TIP: Use Bruised Or Overripe Pears In Sauces Like Barbeque Sauce.
Pineapple	4	<ul style="list-style-type: none"> The entire ingredient is edible, including the skin and the cores. The texture of the skin is difficult to work with and is challenging to repurpose. 	<ul style="list-style-type: none"> REDUCTION TIP: If You're Going To Remove The Core, Save Them And Use In Juices Or Smoothies. You Can Also Use Them As An Aromatic.
Raspberries	5	<ul style="list-style-type: none"> The entire ingredient is edible. 	
Strawberries	4	<ul style="list-style-type: none"> The entire ingredient is edible, including the leaves and seeds. The tops with the leaves are not very flavorful and may not add a lot of value to a dish, but they can be repurposed. 	<ul style="list-style-type: none"> REDUCTION TIP: If You're Going To Remove The Tops Of Strawberries, Use Them To Infuse Water. Use Overripe Strawberries To Make Syrups, Sauces, Or Pastry Fillings.
Tomatoes	5	<ul style="list-style-type: none"> The entire ingredient is edible, and it's a very versatile ingredient. 	
Watermelon	5	<ul style="list-style-type: none"> The entire ingredient is edible, including the skin and seeds. 	<ul style="list-style-type: none"> SAMPLE DISH: Pickle The Watermelon Rind To Add Flavor To A Dish.

APPENDIX H: OVERCOMING COMMON CHALLENGES

OVERCOMING COMMON CHALLENGES		
Phase	Challenge	Solution
Separation & Measurement	Bin Placement	<ul style="list-style-type: none"> Alert and train staff prior to replacing the bins to make sure they are aware what the new bins should be used to capture Mark the floor or wall with colored tape or signage so after the bins are emptied they are returned to their appropriate location
	Bin contamination	<ul style="list-style-type: none"> Use magnetic bin tops to catch silverware When you notice contamination discuss with the staff immediately and with positive messaging to reinforce the intended behavior When you notice staff making an extra effort to reduce or divert food waste, positively reinforce
	Staff Training & Engagement	<ul style="list-style-type: none"> Start every meeting with a reminder on proper separation Reinforce behavior daily as you see both good and bad habits in action Consider offering a training to all new employees that teaches and tests them on food management practices at your property
	Union Labor	<ul style="list-style-type: none"> Communicate openly with union representatives about your program goals and staff roles, as early in the process as possible Assign certain tasks to non-union staff Offer professional incentive to self-electing staff volunteers and champions
	Overnight Staff	<ul style="list-style-type: none"> Host a meeting with the night managers and staff to discuss new waste procedures Engage this group early in the process and explain the proper disposal of the food in the new colored bins and the proper placement of the bins once they have been emptied
	Temporary Staff	<ul style="list-style-type: none"> Whenever a new temporary staff team joins your operation, clearly communicate proper food waste management techniques to staff and managers If using a temporary staffing agency, communicate program goals with the agency and work together to assure habit adoption Use clear and multilingual signage throughout the operation to reinforce habits
	Staff turnover	<ul style="list-style-type: none"> Embed operating procedures and food culture within the HR process by incorporating it into job descriptions, requiring training during the onboarding process, and continually reinforcing the theme throughout the year
	Dispersed Operations	<ul style="list-style-type: none"> Multiple kitchens and outlets can lead to complexity implementing and enforcing such a program. Identify a champion to own the program in each outlet or kitchen. They'll be responsible to communicate successes and obstacles from their zone.
	Program Adoption Across Functional Departments	<ul style="list-style-type: none"> Bring all relevant departmental leaders to the table before program implementation and collaborate on program logistics and goals as appropriate to each distinct food service function.
	Concurrent Campaigns	<ul style="list-style-type: none"> Find ways to connect the various sustainability campaigns or initiatives throughout the property. Food is a cross-cutting issue that has significant connections to water and energy usage, as well as community welfare. Punctuating the interconnectedness of property initiatives can bolster adoption of each program

OVERCOMING COMMON CHALLENGES

Phase	Challenge	Solution
Prevention	Changing behaviors	<ul style="list-style-type: none"> • Use the Lobster Ink video series to introduce staff to some prevention strategies • Send staff to HotelKitchen.org to find additional prevention resources and activities they can undertake as part of their job function • Provide incentives to staff who implement new strategies and encourage fellow staff to do the same
	Balancing Benefits of Reduction with Labor Investments	<ul style="list-style-type: none"> • Successful food waste reduction programs can achieve savings in food and waste hauler costs. Assess the financial benefits of such a program within the context of your operation.
	Buffet Expectations and Standards	<ul style="list-style-type: none"> • Consult the Prevention section of this toolkit for comprehensive guidance on limiting waste from buffet service
Recovery	Availability of options	<ul style="list-style-type: none"> • When offsite options for food waste diversion from landfill are not available through your waste hauler consider the following options: <ul style="list-style-type: none"> > Sending food to a farmer > Sending food to an animal feed production operation > Investing in an onsite option (digester or compost)
	Donation Volume Requirements	<ul style="list-style-type: none"> • Form a donation alliance with other hotels or restaurants in your area to meet volume requirements for larger scale food recovery partners
	Minimizing liability for food donations	<ul style="list-style-type: none"> • Remember you are not liable for any food donations given in good faith and standard food safety time and temperature guidelines are followed, as designated by the Bill Emerson Good Samaritan Food Donation Act • Ask your food donation partner for a food donation agreement that provides further protections.

APPENDIX I: STRATEGIC ROADMAP



VISION

By 2019, The Hotel will be recognized as a pioneer of food waste management. We will accomplish this by educating staff and engaging guests on how to prevent waste, as well as developing a mature food rescue program. By doing so, our food waste management program will be the model for other properties in our network.

STRATEGIC DRIVERS

Sales	Training	Donation	Measurement
KEY STRATEGIC INITIATIVES			
Cultivate working food waste prevention partnerships with clients	Develop one-pager for onboarding new employees and for clients	Identify multiple partners for specific purposes and needs	# of events sold with zero-waste menus
Create seasonal (low-waste) sustainable menus	Create food rescue standards	Partner with others	# of calls from clients requesting zero-waste menus
Empower staff to make waste-reduction decisions	Implement item level over-production log with established thresholds	Give donation options to guests, recognize groups who are engaged in the process	# of restaurant clients that choose zero-waste menu items sold, percentage of total sales

MISSION

We prevent food waste by using food to its highest potential for the benefit of our community and the earth.

APPENDIX J: FUTURE OF THE BUFFET

WWF worked with IDEO, a global design company committed to creating positive impact, to envision and prototype a “Buffet 2.0” system, where food waste would be reduced through more cross-sharing of purpose, data and tools across key stakeholders.

SALES CONVERSATION SOLUTIONS

Interactions between the client, CMP and hotel event staff that move an RFP to an approved event order. Opportunity to create upfront content, tools and resources to influence informed menu choices.

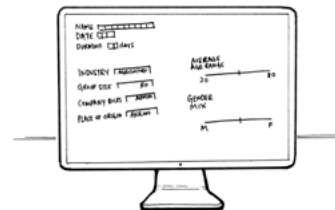
FOOD PHILOSOPHY

Create a philosophy of how the hotel/client values food. Expose the context of food waste while presenting an inspiring goal to be achieved through collaboration. Use in sales and event planning conversations and on the buffet as a conscious consumption cue.



DATA BANK PROGRAM

Make smarter procurement decisions using historic data trends and case studies on attendance and food consumption from similar properties/events. Create a property data bank and/or contribute to a shared data bank with other properties in the brand and industry



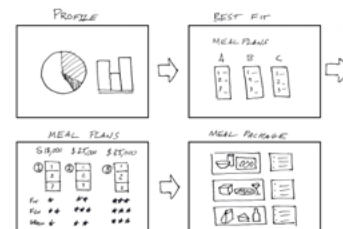
FOOD WASTE CERTIFIED MEETING PLANNERS

Develop working relationships with meeting planners committed to sustainability and waste reduction. If available, consult certifications or courses distinguishing food waste conscious CMPs.



WASTE REDUCING MENU PACKAGES

Generate menus optimizing available and seasonal food resources with the aim of reducing food waste. These packages should be “plug and play” or adaptable, based on client needs.

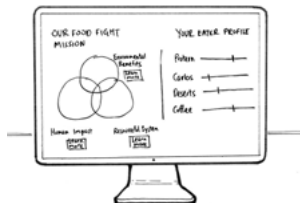


GUEST FORECASTING SOLUTIONS

Inform procurement and day-of food preparation using information gathered during online and on-site interactions with guests.

EATER PROFILE TOOL

Collect basic food preference information from guests during event registration or at another point to inform procurement and/or prep.



MEAL RSVP

Gather data on meal attendance during event registration or at check-in. Subtle prompts during the event – on an event app, if available – can keep unneeded food off of buffets.



MEAL SERVICE SOLUTIONS

Attendees are busy with the event schedule. Hotel staff and CMPs are monitoring and optimizing meal production, adjusting portions and service based on attendee behavior.

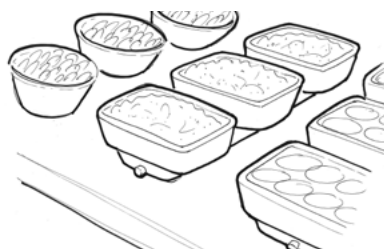
CONSCIOUS CONSUMPTION CUES

Share the hotel/event's food philosophy with verbal prompts and written communications at buffet check-in, buffet lines and on dining tables. Display options include table tents, napkins, lunch boxes, to-go bags, etc.



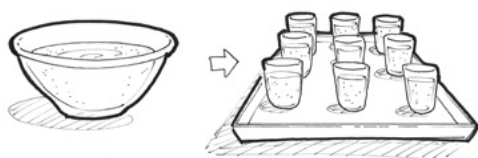
PHASING DOWN VESSELS

Put out increasingly smaller trays of food as meal service ends. This minimizes unrecoverable food left on the buffet, maximizes the possibility for donation and keeps the buffet looking full for the last guest.



PORTIONED VESSELS

Prep single-serve dishes for items like yogurt to avoid wasting large amounts, guide portions to prevent waste on the plate, and to increase aesthetic appeal.



SEPARATE VESSELS

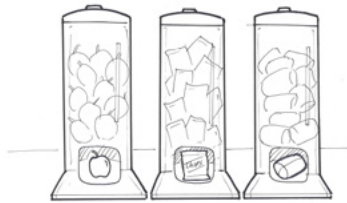
Separate mixes like fruits to create visual interest, avoid wasting out-of-season items, and prevent items from being smashed as customers pick through the mix.



MEAL SERVICE SOLUTIONS CONTINUED

FOOD DISPENSERS

Use tall, clear cylinders/jars/dispensers to hold items like apples. This adds visual appeal and unclaimed items are food safe for reuse on future buffets.



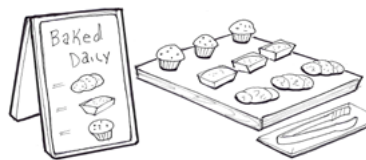
A LA MINUTE DISPLAYS

Instead of allowing expensive items like cold cuts, cheeses and cured fish to stale in on the buffet, display an a la minute plate that can be ordered from banquet servers.



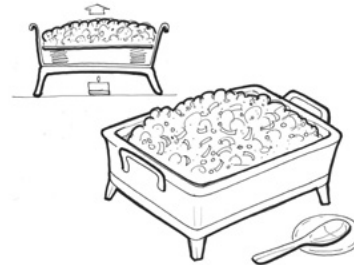
PACE THE PASTRIES

Display pastries and breads in small, horizontal batches instead of in piles or bowls. Call attention to any house-baked items as specialty.



ALWAYS FULL CHAFERS

Use chafers with adjustable tray heights that create the visual effect of a full chafers.



FOOD KIT 2.0

Elevate your boxed lunch experience. Use reusable or otherwise sustainable packaging printed with food philosophy messaging. Formats could include a “build your own” lunch box or a “barter table” for exchanging items. This can prevent waste of standard snack options while encouraging interaction between guests.



TRACKING CONSUMPTION DATA SOLUTIONS

After the event, provide an opportunity to exchange data between the hotel, meeting planner, client, and other partners to inform future events and benchmark successes.

RESOURCEFULNESS REPORTS

Share a report with meeting planners and clients that summarizes experiences and data from the event, showing the connection between thoughtful event planning and maximization of procured food. Donating leftover food to local groups can also contribute to the client's CSR goals. This information can help institutionalize waste reducing practices for hotels, planners and clients.



WEEKLY WOW SHARE

Share emerging experiments, experiences and data (anonymized, if necessary) with your local group, brand or industry.



11

END NOTES

- 1 Wasted: How America Is Losing Up To 40 Percent of Its Food From Farm To Fork To Landfill (2nd edition), NRDC, (2017), <https://www.nrdc.org/sites/default/files/wasted-2017-report.pdf>
 - 2 America's Food Waste Problem, EPA (2016), <https://www.epa.gov/sciencematters/americas-food-waste-problem>
 - 3 Global Food Losses and Food Waste, UN FAO, (2011) www.fao.org/food-loss-and-food-waste/en/
 - 4 Convention on Biological Diversity, CBD Technical Series No 79, 2014
 - 5 ReFED, A Roadmap to Reduce US Food Waste by 20 Percent, (2016), www.refed.com.
 - 6 Statista. 2017. "Food and drink sales of hotel restaurants in the US from 2009 to 2017."
 - 7 Results provided by LeanPath and Winnow based on their work with the hospitality sector.
 - 8 Food that is fit for human consumption, but is not consumed because it is left to spoil or is discarded by retailers or consumers.
 - 9 USDA estimated in their 2011-2012 What We Eat in America report that an average meal is 1.2 pounds of food.
 - 10 Number derived from savings seen by demonstration properties and other industry stories gathered through this project.
 - 11 ReFed. 2016. <http://www.refed.com/solutions/trayless-dining>
 - 12 Winnow and LeanPath provided data
 - 13 The globally recognized Food Loss and Waste Accounting and Reporting Standard can be a useful guide (see flwprotocol.org for more details).
 - 14 US Environmental Protection Agency. April 2016. Volume-to-Weight Conversion Factors.
 - 15 "Don't Waste, Donate: Enhancing Food Donations Through Federal Policy." Chlpi.org. Harvard Food Law and Policy Clinic, Mar. 2017. Web. page 3. <https://goo.gl/v3w3Nh>.
 - 16 "Liability Protections for Food Donation." William Mitchel College of Law Public Health Center, Mar. 2013. Web. Page 3. <https://goo.gl/ttYaLT>
 - 17 "A Road Map to Reduce Food Waste by 20% ." ReFed, 2016. Web. Page 43.
 - 18 As of October 2017, the following states: California, Connecticut, Massachusetts, Rhode Island, and Vermont, and cities: Austin, TX, New York, NY, Portland, OR, San Francisco, and Seattle, WA all have organics to landfill bans.
 - 19 By diverting waste from landfill our demonstration project hotels prevented between 4 metric tons and 22 metric tons of carbon dioxide equivalent from being released to the atmosphere over 4 months.
- Unless otherwise attributed, all quotes were gathered as part of the qualitative research study performed by Bellinson & Company, 2016.*
- HotelKitchen.org/Resources

