Zero Plastic Initiative at SHIA

Last updated June 17, 2025

Our Zero Plastic Policy

At SHIA, we believe in creating a systematic approach to Zero Plastics. Recognizing the urgent global crisis of plastic pollution and the restaurant industry's significant contribution to it, we research, collect data, analyze procedures, and disseminate useful and practical information to the restaurant industry. **We aim to inspire a movement towards reducing single-use and limited-use plastics.** Our objective isn't to lecture restaurateurs, but to create a blueprint for what's possible in plastic reduction and inspire restaurants to adopt what they can. This document represents the first of our research, sharing findings from our non-profit restaurant after more than seven months of operation.

For readers considering their own sustainability initiatives, understanding SHIA's operational details provides a helpful reference. Our restaurant, at approximately **1800 square feet**, offers an intimate setting with **a total seating capacity of 35** (20 in the dining room, 15 at the bar). During **our five-day dinner service week** (Tuesday-Saturday), we typically serve about two turns per night, **welcoming 55-60 guests**. This insight into our space and service volume can help you contextualize how our plastic-free strategies might apply to your own venue.

As a non-profit, SHIA is uniquely positioned to conduct this research, providing a transparent, actionable model for the industry. In partnership with OpenTable, we are also working to disseminate these findings broadly to restaurant communities. At the 12-month mark, we will release a comprehensive financial report on the cost differential of running a Zero Plastic restaurant. Our goal is to transparently share our year-end findings on this plastic-free transition, detailing the overall financial impact, benefits, and risks.

Since opening in November 2024, we've focused our initial efforts on eliminating single-use plastics and plastic items in our kitchen operations. We've identified over 30 common points of plastic found in restaurants and offer alternatives, all while maintaining an exceptional dining experience. While our long-term vision includes tackling the broader supply chain, this initial phase marks our steadfast commitment. In Year 2, we hope to find solutions for plastics in our distribution and purveyor systems. Each year, we will delve deeper into strategies to reduce plastic consumption in the restaurant industry.

Our mission is to determine if the elevated costs of going Zero Plastic are sustainable for a broad spectrum of restaurants and if consumers are willing to bear these added costs. This is a larger question we will tackle in the years to come with a scientific yet practical approach that can benefit the industry at large.

A Note on Pricing: All prices are online estimates, providing a general idea of costs for plastic versus non-plastic replacements. These figures are broad guides, not specific product or brand recommendations.



SHIA Kitchen in 2025.



SHIA Bar and Lounge in 2025.

Table of Contents

Our Zero Plastic Policy	1
KITCHEN / BACK OF HOUSE	4
1. Cling Wrap	4
2. Quart Containers or Deli Containers with Lids	8
3. Cutting Boards	12
4. Squeeze Bottles	15
5. Trash Bags and Bins	19
6. Disposable Food Grade Gloves	21
7. To Go Containers, Plastic Cutlery and Plastic Bags	25
8. Portion Bags and Cups	29
9. Cryovac Bags	31
10. Silicone Molds and Mats	34
11. Nonstick pan	37
12. Rubber Spatula	39
13. Chef's Knives with Plastic Handles	42
FRONT OF HOUSE	45
14. Permanent Markers	45
15. Plastic Spray Bottle	47
16. Laminated Plastic Menus	50
17. Plastic Trash bin	52
18. Server Trays	55
19. Plastic Straws	57
20. Plastic Stapler	60
21. FOH Organizers	62
22. Silverware organizer	65
23. Bathroom Soap dispenser	67
24. Check Presenter	69
25. Napkins	72
26. Hangers	74
27. Adhesive Tape	76
28. Interior Paint	79
29. Plastic Handle Broom and Mop	81
30. Umbrellas	83
31. Candles	86
Cost of Going Plastic-Free So Far	89
Conclusion	90
Contact Information	91
Appendix: Your Quick Checklist	92

KITCHEN / BACK OF HOUSE

1. Cling Wrap

Plastic cling wrap is primarily used to retain moisture, prevent cross-contamination, and protect foods. SHIA replaces it with sustainable options like **muslin fabric, beeswax wraps, and cheesecloth**. These alternatives will eliminate the use and disposal of approximately 5,000 - 7,000 meters of plastic film annually, significantly reducing single-use plastic waste generation.

Cost and Usage Analysis

This analysis compares food wrapping solutions. Our baseline is a busy establishment using 8 rolls of 18" x 2,000-5,000 ft commercial plastic cling wrap monthly, costing approximately \$200-\$560.

Plastic	Cli	ina	Wrap)
1 140110	•		map	

Details	Standard PVC or LDPE film, widely used for covering prepped items and short-term storage. It's the industry standard for convenience and strong seal.
General Market Price (Per Roll)	\$25 - \$70 (for 18" x 2,000-5,000 ft commercial rolls).
Estimated Price (Monthly Cost)	\$210 (based on 6 rolls @ \$35/roll)
Labor Note	Very low per use—simply tear and apply. Quick disposal; no cleaning or maintenance.

Muslin Fabric

Details	Reusable, unbleached food-grade cotton fabric, commonly bought in large rolls or bolts. Used for straining, wrapping delicate items, or covering dough. It can be washed and reused multiple times.
General Market Price (Per Roll)	\$2.00 - \$8.00 (in bulk, for 60" wide unbleached food-grade).
Estimated Price (Monthly Cost)	An initial investment of \$100 - \$750 is needed for a functional stock. The recurring monthly cost of \$40 - \$150 covers replacements due to

	wear, staining, or loss, assuming regular washing and reuse.
Labor Note	Requires significant labor for washing, drying, folding, and storing after each use. This adds a substantial hidden cost in staff time or commercial laundry services.

Usage & Procedures

Muslin fabric is excellent for covering containers storing raw and cooked produce, meats, and fish that need to retain moisture. For food products that need to avoid drying out but can also benefit from a slightly porous material, muslin is ideal. We specifically use it to wrap items like fresh vegetables and fruits. Soaking the muslin fabric in water before using it is especially effective on items like fresh herbs and cut vegetables, as it creates a moisture layer of protection for food products that allows for moisture retention while still allowing for air circulation. For food products that need more protection, use multiple layers of muslin fabric.

Washing & Reusability

Muslin fabric is used only once per day and collected at the end of each day for washing. The fabric is washed daily and sanitized before recirculating into our food storage system.

Sizes and Quantities for SHIA Kitchen

- 6" x 6" 100 pieces
- 8" x 10" 100 pieces
- 14" x 20" 60 pieces
- 18" x 26" 40 pieces

Pros

Muslin fabric is extremely versatile and breathable. It is easily washable and reusable. We use it to wrap items like fresh vegetables and fruits that may need protection from drying out but can also benefit from a slightly porous material. Soaking the muslin fabric in water before using it is especially effective on items like fresh herbs and cut vegetables.

Cons

Muslin fabric does stain easily and must be washed frequently, typically daily at SHIA. A recurring challenge is that muslin pieces are often mistaken by staff as cleaning rags, sometimes winding up in the dining room wait station, which has required a significant learning curve for our team. Also, if the muslin cloth is not washed and dried properly mold build up can start to occur.

Beeswax Wraps (DIY for Restaurant Use)

Details	Fabric coated with a beeswax mixture. These wraps are reusable and can be used for wrapping individual portions, covering bowls, and short-term storage. They require cleaning and occasional re-coating to maintain effectiveness.
General Market Price (Per Roll)	Beeswax pellets: \$8 - \$15 per pound (in bulk). Muslin/Cotton fabric: \$2 - \$5 per yard (in bulk).
Estimated Price (Monthly Cost)	An initial investment of \$140 - \$600+ is required for materials to make 100-200 wraps. The recurring monthly cost of \$20 - \$80 accounts for replacing damaged wraps or for re-coating materials.
Labor Note	Very high initial labor for fabrication (cutting, coating, curing). Ongoing labor for cleaning, drying, inspecting, and periodic re-coating is substantial. This option is less practical for high-volume, quick-wrap tasks.

Usage & Procedures

We create our own beeswax wraps using high-quality canvas fabric dipped in beeswax. Beeswax wrap provides a watertight seal on containers that prevents cross-contamination and airborne bacteria. Use them on all finished sauces, liquids, prepared foods, preserved foods, and any item that is highly perishable. Wrap can be made into any size that fits your food storage containers. You can also purchase beeswax paper online.

Washing & Reusability

Beeswax wrap is hand washed with soap and cold water at the end of each day and dried before recirculating into our food storage system.

Beeswax Wrap Recipe (for DIY production)

- Materials: Cotton or canvas fabric, 2 pounds Food Safe Beeswax.
- Equipment: Scissors, baking sheet, parchment paper.
- Method: Melt beeswax in a large pot. Dip paper or fabric into the melted beeswax and let it cool at room temperature.

Pros

Beeswax wraps are economical, easy to make, and convenient to store. They are effective for items needing protection from the environment and can be easily hand-washed under cold water with soap.

Cons

Beeswax paper is fragile and does not always hold a perfect seal. They cannot be used on hot items or else the beeswax will start to melt. For the same reason, they cannot be washed under hot water, which can be an inconvenience in a commercial kitchen.

Cheesecloth	
Details	Woven cotton fabric with an open weave, sold in rolls or pre-cut pieces. Primarily used for straining, filtering, and bundling herbs (like a bouquet garni). In busy kitchens, it's often treated as a limited-reuse or single-use item due to the difficulty of cleaning food particles.
General Market Price (Per Roll)	\$100 - \$250+ (for a 100-yard roll, Grade 90). \$50 - \$200 per case (for pre-cut pieces).
Estimated Price (Monthly Cost)	\$100 - \$300+ per month (assuming high usage for straining and limited reuse, or if used to replace some cling wrap functions).
Labor Note	Moderate labor for cutting or handling. If reused, cleaning is difficult due to trapped food particles, which often makes it more labor-efficient to dispose of after use.

Usage & Procedures

Cheesecloth is a loose weave cotton cloth that is very porous, best used for items that need contact with the air. We can double or triple wrap and use it for ferments and dry storage items like rice and beans, allowing for necessary air circulation while providing coverage.

Pros

Cheesecloth is very economical and can be used for many purposes. It is porous and lightweight. Cheesecloth is made from cotton, a natural fiber that readily decomposes.

Cons

While cheesecloth is a versatile tool, it poses several challenges. It's difficult to wash thoroughly, often leading to it becoming a single-use item. Cutting it also creates loose fibers that can inadvertently end up in prepped food. Additionally, securing it required a shift from non-biodegradable rubber bands to string, which is a more labor-intensive method.

Containers with Lids

Details	Reusable storage containers made from durable materials like polypropylene plastic, polycarbonate plastic, or stainless steel. They are designed for long-term use in professional kitchens for storing prepped ingredients, leftovers, and batch-cooked items.
General Market Price (Per Roll)	 Polycarbonate Food Pans: \$15 - \$60+ per set (pan + lid). Stainless Steel Food Pans: \$20 - \$100+ per set (pan + lid).

Estimated Price (Monthly Cost)	This is primarily an initial capital investment of \$500 - \$3,000+ to establish a comprehensive inventory. The recurring monthly cost of \$50 - \$100 covers replenishment/replacement due to breakage, loss, or wear (lower for stainless steel over time).
Labor Note	High labor for washing, drying, organizing, and storing both containers and their lids after every use. This requires dedicated dishwashing time, drying rack space, and efficient storage systems.

Usage & Procedures

We use a selection of containers that have lids that either clip or screw into place. These containers are reusable and eliminate the need for a temporary plastic cling wrap lid, providing secure and durable food storage.

Pros

Depending on the container you choose to use, prices can vary widely. But overall, we have found this method to be the best way to replace a temporary plastic lid. The lids are airtight, easily washable, and reusable, and they offer a durable solution for food storage.

Cons

The only significant drawback is storage. We use a container system that has many different sizes, so storing them efficiently is a challenge. Always having enough lids to match the containers is also a recurring hurdle. To mitigate this, we purchase extra lids, and we have created a separate storage bin with all the lids organized.

2. Quart Containers or Deli Containers with Lids

Quart or deli containers with lids are standard for storing prepped foods, sauces, and garnishes. SHIA replaces plastic versions with viable substitutes: **ceramic, stainless steel, and glass containers, utilizing multiple sizes for various applications**. These alternatives will prevent the disposal of approximately 800-1,400 single-use plastic deli containers annually, making a significant dent in recurring plastic packaging waste.

Cost and Usage Analysis

Our baseline is a busy establishment's monthly usage of plastic quart deli containers, costing approximately \$90 - \$500+ per month.

Quart Containers or Deli Containers with Lids

Details	Made from polypropylene (PP) or polyethylene (PE), typically 32 oz (quart) capacity. These are common, inexpensive, lightweight, and often translucent containers. They are widely used for daily prep, portioning, sauces, and short-term storage in commercial kitchens.
General Market Price (Per Case)	\$30 - \$100 per case (150-250 containers with lids).
Estimated Price (Monthly Cost)	\$90-500+ (assuming 3-5 cases per month, including limited reuse before disposal).
Labor Note	Low labor per use (fill, lid, use/dispose). Moderate labor for washing if reused a few times before disposal. Significant labor for waste management/disposal if primarily single-use.

Ceramic containers

Details	Ceramic containers are specifically used for sauces and vinaigrettes that require a non-reactive surface. They are made from fired clay.
General Market Price (Per Unit)	\$5 - \$25+ per quart-sized unit (individual container). Prices vary widely.
Estimated Price (Monthly Cost)	High initial capital investment of \$500 - \$7,500+ (for 100-300 units). Recurring monthly cost of \$50 primarily for breakage replacement.
Labor Note	High labor for washing due to weight and fragility. Requires specific dishwashing procedures and secure storage. Not ideal for quick, high-volume prep.

Usage & Procedures

Multiple sizes of ceramic containers are used for different applications. They are specifically used for sauces and vinaigrettes that require a non-reactive surface. Ceramic containers also tend to retain temperatures for a long period of time.

Washing & Reusability

Ceramic containers must be handled with care during washing due to their fragility. They are generally washable in commercial dishwashers, but require specific attention to prevent chipping or breaking. Their reusability is high, but dependent on preventing breakage.

Pros

Ceramic containers retain temperatures for a long period of time and they are reactive-free to high pH foods. They come in a wide variety of sizes and prices and they can be customized to your needs. They are also visually beautiful if you have an open kitchen.

Cons

From a cost perspective, they tend to be expensive. They are fragile, and it is difficult to find ceramic containers that are stackable, making storage a significant problem.

Stainless Steel Containers

Details	Durable, non-reactive, and widely available in various commercial kitchen sizes (like Gastronorm/GN pans, which offer quart-equivalent capacities, e.g., 1/6 or 1/9 GN).
General Market Price (Per Unit)	\$15 - \$40+ per quart-sized unit (e.g., a 1/6 GN pan with lid or similar stackable container). Prices vary greatly by gauge and type.
Estimated Price (Monthly Cost)	Significant initial capital investment of \$1,500 - \$12,000+ (for 100-300 units). Very low recurring monthly cost of \$10 - \$50 (mainly for lost lids or occasional damage).
Labor Note	High labor for thorough washing (especially if food residue dries). Compatible with commercial dishwashers. Requires dedicated, organized storage. Heavier than plastic.

Usage & Procedures

Stainless steel containers are used for all prepared foods and garnishes. They come in a wide variety of styles and shapes and are generally stackable, making them efficient for kitchen organization.

Washing & Reusability

Easy to clean and sanitize in commercial dishwashers. Designed for extensive reuse and a very long lifespan. However, they can show water spots or residue, requiring frequent cleaning.

Pros

Stainless steel containers come in a wide variety of styles and shapes. They are generally stackable, easy to clean, do not react to high pH foods, and are visually pleasing.

Cons

Stainless steel containers conduct heat, so they will become very hot when storing hot foods and very cold when storing cold foods. They retain moisture, so containers must be cleaned frequently. They can also be very expensive. Many options come with a plastic lid, so try to find ones with a metal lid to maintain a truly plastic-free system. When it comes to checklist, inventory, and time management they can pose a challenge, need to to stay on top of employees consolidating properly to ensure they are completing preplist with relevant pars. Plastic deli containers and cambros have made life behind the clipboard easier because your visible see prep on hand.

Glass Containers

Details	Typically made from borosilicate glass (Pyrex-style), known for transparency and non-reactivity.
General Market Price (Per Unit)	\$5 - \$20+ per quart-sized unit (individual container with lid).
Estimated Price (Monthly Cost)	High initial capital investment of \$500 - \$6,000+ (for 100-300 units). Moderate ongoing monthly cost of \$100 primarily for breakage replacement. More durable than ceramic, but still fragile in commercial settings.
Labor Note	High labor for careful washing and handling due to fragility and weight. Prone to chipping/breaking, requiring constant vigilance. Essential to have dedicated, safe storage. Transparency aids content identification.

Usage & Procedures

Glass containers are used for garnishes and mise en place that require a visual connection to the ingredient. They are great for dry storage items since they are translucent. They are also ideal for brining and pickling as they can be thoroughly washed and do not retain any smells.

Washing & Reusability

Glass containers, when carefully maintained, are durable and last a very long time. They are non-reactive and can be thoroughly washed. However, washing requires careful handling due to their weight and fragility, as they are prone to chipping and breaking.

Pros

Glass containers are great for dry storage items since they are translucent. They are non-reactive and when carefully maintained, they are durable and last a very long time. While glass options are not generally recommended for high-volume general prep, they do make for a beautiful display and they are ideal for brining and pickling as they can be thoroughly

washed and do not retain any smells.

Cons

Glass is expensive, they are highly fragile, and heavy. They rarely come in a stackable style. Their fragility and weight are significant drawbacks in a busy kitchen setting.

3. Cutting Boards

Cutting boards provide a flat surface for preparing meats, fish, and produce. For those seeking alternatives to traditional plastic, viable substitutes include **wooden**, **bamboo**, **and rubber cutting boards**. These alternatives will prevent the disposal of approximately 10-20 plastic cutting boards annually, effectively halting a direct source of microplastic shedding from knife marks into food.

Cost and Usage Analysis

This evaluation analyzes the costs and operational implications of traditional plastic squeeze bottles versus non-plastic alternatives for sauce storage and plating. Our baseline is a busy establishment's monthly usage for plastic cutting boards, costing approximately \$25 - \$57+ per month.

Plastic Cutting Board

Details	High-density polyethylene (HDPE) boards, typically color-coded for different food types (e.g., white for dairy, yellow for poultry, blue for fish, red for raw meat, green for produce, brown for cooked meat). They offer a non-porous surface.
General Market Price (Per Unit)	\$15 - \$60 (for commercial sizes like 12x18 or 18x24 inches). Bulk purchases may offer slight discounts.
Estimated Price (Monthly Cost)	\$25 - \$57+ (Assuming a rotation of 10-15 boards, with individual boards needing replacement every 4-6 months due to deep knife marks, warping, or odor retention. This monthly cost accounts for a constant need for replacement.)
Labor Note	Relatively low labor for machine washing and sanitizing. However, deep scoring can harbor bacteria, requiring more vigorous cleaning or earlier replacement.

Wooden Cutting Board

Details	Made from solid hardwoods like oak, maple, walnut, or cherry. These boards offer a forgiving surface for knives and are considered a long-term investment if properly maintained.
General Market Price (Per Unit)	\$50 - \$200+ (for commercial-grade hardwood boards, 1.5"+ thick). Thin or glued boards are cheaper but less durable.
Estimated Price (Monthly Cost)	Initial investment of \$500 - \$2,000+ for a functional set. Recurring monthly cost of \$10 - \$50 (primarily for oiling/maintenance supplies and very occasional replacement of a board every 5-10+ years if well-maintained). This assumes a mix of high-quality and less expensive boards.
Labor Note	Higher labor for hand washing and immediate drying. Requires regular oiling/conditioning for longevity. Cannot withstand high-temperature commercial dishwashing

Usage & Procedures

Usage procedures are the same for all cutting boards regarding the act of cutting and preparing meats, fish, and produce.

Washing & Reusability

The most important part of maintaining durability in wooden cutting boards is not to pass them through a high-temperature dishwashing machine that uses harsh chemicals. Hand washing with natural detergent and quickly drying the boards will ensure longevity while maintaining proper sanitary conditions. With proper care, these boards are designed to last for years.

Pros

Wooden cutting boards come in a large variety of styles and prices. The best ones are thicker boards that have been made from a single piece of wood. Hardwoods (oak, maple, walnut, cherry) are the best materials for durability and longevity. Wood is also very forgiving and is better for your knife than any synthetic hard material. While these boards are expensive, we believe it is a good investment and one that will last years if maintained properly.

Cons

When selecting a wooden cutting board, hardwoods are the best materials, but these will be very expensive. Thin boards and boards that are glued together from many pieces of wood will quickly warp and fall apart. The primary challenge is that they cannot be passed through a high-temperature dishwashing machine that uses harsh chemicals, requiring careful handwashing and immediate drying.

Bamboo Cutting Boards

Details	Made from bamboo, often glued strips. They are generally lightweight and easy to care for, suitable for lighter tasks.
General Market Price (Per Unit)	\$10 - \$40 (for commercial sizes).
Estimated Price (Monthly Cost)	Initial investment of \$100 - \$400 for a set. Recurring monthly cost of \$20 - \$80 (due to a higher replacement rate than hardwood or rubber, as they warp easily).
Labor Note	Similar to wood, hand washing and immediate drying are key to longevity. Prone to warping if exposed to excessive moisture or heat.

Usage & Procedures

Usage procedures are the same for all cutting boards regarding the act of cutting and preparing meats, fish, and produce. We use bamboo cutting boards for small tasks like at the bar and various light work like cutting herbs or using on off-site catering events.

Washing & Reusability

Cleaning and sanitizing are different for organic material cutting boards like bamboo. Avoiding long exposure to moisture and high heat is key to ensuring longevity in these boards. Hand washing and quick drying are recommended.

Pros

Bamboo cutting boards are generally inexpensive, lightweight, durable, and easy to care for.

Cons

Bamboo boards tend to warp very easily and fall apart easily. Avoiding long exposure to moisture and high heat is key to ensuring longevity in these boards, which can be challenging in a busy kitchen.

Eco-friendly Rubber Cutting Boards

Details	Available in various materials, with natural rubber boards being an eco-friendly and biodegradable option. They offer durability, stability, and a smooth, tough surface. Often used in states where wooden cutting boards are banned for certain uses.
General Market Price (Per Unit)	\$80 - \$300+ (for commercial-grade natural rubber boards).

Estimated Price (Monthly Cost)	Initial investment of \$800 - \$3,000+ for a functional set. Recurring monthly cost of \$0 (very low, as they are exceptionally durable and long-lasting).
Labor Note	Can withstand high-temperature cleaning procedures, making them efficient for commercial dishwashers. Heavier to handle due to density.

Usage & Procedures

Usage procedures are the same for all cutting boards regarding the act of cutting and preparing meats, fish, and produce.

Washing & Reusability

Cleaning and sanitizing procedures are different for organic material cutting boards, including rubber. Rubber boards can withstand high-temperature cleaning procedures, making them highly compatible with commercial dishwashers and ensuring proper sanitation. They are designed for a very long lifespan.

Pros

Rubber cutting boards come in a wide variety of materials; the most important thing to look for is to find a board that is made from natural rubber, not synthetic, as natural rubber boards are generally considered eco-friendly and biodegradable. Rubber boards are a great option especially in states where wooden cutting boards are banned. Rubber boards offer durability, stability, and a smooth, tough surface that is still easy on the knife blade. They can withstand high-temperature cleaning procedures and they will last a very long time.

Cons

Natural Rubber boards are very expensive and heavy, so storage is challenging.

NOTE: With all the natural material options above, the upfront price is a challenge versus plastic cutting boards. However, we believe that over time, the investment in a natural material, high-quality cutting board will prove financially viable compared to a plastic board that must be replaced regularly due to warping, odors, and the risk of micro-plastic contamination.

4. Squeeze Bottles

Squeeze bottles serve as both storage containers for sauces and vinaigrettes and as a vessel for creating sauce shapes on plates. For those looking for non-plastic alternatives, **glass vessels** and **stainless steel mixing bowls** are viable substitutes. These alternatives will divert approximately 100-200 plastic squeeze bottles from landfills annually, actively preventing potential chemical leaching from heated or acidic contents.

Plastic squeeze bottles are notorious for retaining smells and flavors of their contents, with cross-contamination of smells always being an issue. They need frequent replacement, and their plastic lids are notorious for losing their hold over time, resulting in kitchen accidents. We have found there is no single one-to-one replacement for this tool; instead, we have simply eliminated the need for the squeeze bottle overall in plating and storage.

Cost and Usage Analysis

Plastic Squeeze Bottles

Details	Typically made from pliable plastic (LDPE or HDPE), ranging in size from 8 oz to 32 oz. They are designed for easy shaking, consistent dispensing via vacuum pressure, and creating controlled shapes (dots, drizzles) during plating.
General Market Price (Per Unit)	\$3 - \$25 (for commercial-grade squeeze bottles, often sold individually or in packs/cases).
Estimated Price (Monthly Cost)	\$120 - \$1,000+ (Assuming a restaurant uses and frequently replaces 40+ bottles per month due to retaining smells/flavors, lids losing hold, or general wear).
Labor Note	Low labor per use for quick dispensing. Moderate labor for washing, but difficult to thoroughly clean, leading to frequent replacement. Labor for setup/refilling.

Glass Vessels

Details	Re-used old wine and sake bottles, or purpose-built glass bottles with spigots, used to hold oils and various liquids. They are non-reactive and allow for visual identification of contents.
General Market Price (Per Unit)	\$0 (for reused bottles) to \$5 - \$20+ (for new glass bottles with spigot nozzles, 8-32 oz capacity).
Estimated Price (Monthly Cost)	\$10 - \$100+ (Very low if primarily using reused bottles, higher if purchasing new spigot bottles and accounting for breakage. Breakage can be significant in a busy environment).
Labor Note	Moderate labor for washing (careful handling due to fragility). Additional labor for filtering/transferring liquids into bottles. Can get slippery during service.

Usage & Procedures

We re-use old wine and sake bottles to hold our oils and various liquids in the kitchen. This is an economical method for creating vessels out of recycled bottles. There are also many options for new glass bottles with a spigot nozzle that acts like a squeeze bottle.

Washing & Reusability

Glass vessels are reusable and can be thoroughly washed. Careful handling is required due to their fragility.

Pros

Re-using old wine and sake bottles is an economical method for creating vessels out of recycled bottles. Glass is non-reactive, and allows for clear visibility of contents.

Cons

The glass is fragile, and vessels can get slippery during service. While some glass bottles have spigot nozzles, because the glass is not pliable, the vessel cannot be squeezed, and the amount of liquid coming out of the nozzle cannot be variably controlled through pressure, which eliminates the "drizzle" or "dot" plating ability.

Stainless Steel Mixing Bowls

Details	Various sizes of stainless steel bowls used for mixing, holding, and serving sauces and vinaigrettes. This method shifts away from pre-made, stored sauces to a more à la minute preparation.
General Market Price (Per Unit)	\$5 - \$30+ (for commercial-grade stainless steel mixing bowls, various sizes up to a few quarts).
Estimated Price (Monthly Cost)	Initial investment of \$100 - \$500+ for a range of small to medium bowls. Recurring monthly cost of \$5 - \$20 (very low, primarily for occasional replacement due to loss or damage).
Labor Note	Significantly increased labor for à la minute preparation (stirring/mixing with each order). High labor for washing and storage of numerous bowls.

Usage & Procedures

For vinaigrettes that were typically held in squeeze bottles, we have opted to go to a radically different approach. Instead of mixing a vinaigrette hours or sometimes days ahead of time and storing it in a squeeze bottle that will affect the taste and smell of the vinaigrette, we keep all our vinaigrettes in stainless steel containers and we mix our vinaigrettes to order or mix a few orders at a time in a small stainless bowl. This not only eliminates the need for a squeeze bottle but it ensures that vinaigrettes are fresh, made to order, and not cross-contaminated

with plastic smells.

Washing & Reusability

Stainless steel mixing bowls are highly durable and easy to clean. They can withstand high-temperature washing and are designed for extensive reuse in a commercial kitchen.

Pros

Stainless steel mixing bowls are durable, easy to clean, and do not react to high pH foods. This approach ensures that vinaigrettes are fresh, made to order, and not cross-contaminated with plastic smells.

Cons

This method does require an extra step during service for mixing each order or a few orders at a time. This increased labor for creating vinaigrettes needs to be factored in compared to bulk preparation. Still with practice one can become quite efficient.

Plating (Operational Shift)

Details	This is not a direct substitute product but an operational change to eliminate the need for squeeze bottles for artistic plating.
General Market Price (Per Unit)	N/A (operational shift, not a product purchase).
Estimated Price (Monthly Cost)	Potentially lower operational cost by simplifying plating steps and reducing need for specific tools.
Labor Note	Reallocates plating labor from intricate drizzling/dotting to more organic ladling/spooning, which can become efficient with practice.

Usage & Procedures

The other common usage for squeeze bottles is to hold purees and sauces that can be controlled during plating to form modern shapes such as dots and drizzles and streams. In our kitchen, we have simply eliminated the desire to create these shapes and art with our sauces, opting instead for a very organic plating style that relies on the natural gravity of a sauce releasing from a spoon or containers with spouts.

Pros

The plating style is natural, beautiful, and can still look and feel modern without the playfulness of dots and lines on a plate. This eliminates the need for a specialized tool.

Cons

This approach means we would not be able to create the omnipresent "drizzle" on plates, and we would not be able to plate sauces in dots or create elaborate designs on plates. Our plating will become more organic, and sauces will be ladled out, using various spoons.

5. Trash Bags and Bins

Trash bags are essential for a restaurant, serving to collect, store, and safely transfer waste into dumpsters, while also preventing waste contamination and deterring environments suitable for rodents. For establishments looking to reduce their reliance on conventional plastic, viable substitutes include **biodegradable trash bags** and **metal bins with lids**. These alternatives will prevent the disposal of approximately 3,000 to 4,000 plastic trash bags and avoid the replacement of 5 to 15 plastic trash bins annually, significantly reducing large-scale plastic waste and promoting biodegradable waste streams.

Cost and Usage Analysis

This evaluation compares the estimated costs and operational implications of various trash collection methods in a restaurant. Our baseline for comparison is conventional plastic trash bags, which are widely used.

Details	Made from polyethylene, these are the industry standard for waste collection due to their strength, tear resistance, and cost-effectiveness. They are used to collect, store, and safely transfer restaurant waste into dumpsters, preventing contamination and deterring pests.
General Market Price (Per Unit)	\$20 - \$60 per case (typically 100-250 bags, common sizes like 33-gallon to 55-gallon).
Estimated Price (Monthly Cost)	\$100 - \$400+ (Assuming a busy restaurant uses 2-5+ cases per month, depending on waste volume and bag size).
Labor Note	Very low labor per use (insert, fill, tie, remove, dispose). Minimal cleaning required for the bins themselves as the bag contains most waste.

Trash Bags and Bins

Biodegradable Trash Bags

Details	Plant-based trash bags designed to break down more readily than conventional plastic. They function similarly to plastic bags but come with added costs and specific performance considerations.
General Market Price (Per Unit)	\$40 - \$120 per case (100-200 bags). Prices are significantly higher than traditional plastic.
Estimated Price (Monthly Cost)	\$200 - \$800+ (This is higher than plastic, as bags are more costly per unit and may need more frequent changing due to lower strength. This cost is offset if a robust waste reduction system is in place).
Labor Note	Similar per-use labor to plastic bags for filling and disposal. However, bags may need to be changed more frequently if not as sturdy, potentially increasing labor.

Usage & Procedures

Biodegradable plant-based trash bags function the same as plastic trash bags with the primary disadvantage of added cost. To offset the cost of these bags, we have embarked on a system to reduce waste to lessen the quantity of bags needed.

Pros

Biodegradable trash bags are plentiful now and can be found online through many different companies. They seemingly solve the issue of a plastic-free kitchen without much of a difference in procedure. These can be used in the same manner as a plastic trash bag.

Cons

Biodegradable bags are not as sturdy as plastic, so they must be changed frequently as they cannot hold as much waste. They are costly, and due to the fact that you are using more of them, they become a financial burden. While they are a useful alternative to plastic and are biodegradable, they do not solve the issue of a single-use item that is being constantly used and adding to our landfills. Our solution is to take an entirely new perspective on waste and to find ways to produce less waste or to process our waste so that we do not require bags. (Note: This is an ongoing study and results will be published at the end of 2025.)

Metal Bins with Lids

Details	Reusable garbage containers made from galvanized steel or stainless		
	steel. They serve as a direct replacement for plastic garbage bins,		
	designed for long-term use without the need for bags in some		
	applications.		

General Market Price (Per Unit)	 Galvanized Steel Bins (20-32 gallon): \$30 - \$80+ per unit. Stainless Steel Bins ("Slim Jim" style, 23-35 gallon): \$150 - \$400+ per unit. Initial investment of \$300 - \$4,000+ for a complete set of bins throughout the kitchen. Recurring monthly cost of \$5 - \$30 (very low, for occasional deep cleaning supplies, or rare replacement due to extreme damage or rust for galvanized steel). This eliminates the direct monthly cost of bags if used bag-less.	
Estimated Price (Monthly Cost)		
Labor Note	High labor for direct cleaning and sanitizing of bins after each emptying, especially if used without bags. Galvanized steel bins are heavy and can be noisy when moved.	

Usage & Procedures

Metal bins with lids can be used in the same way as synthetic plastic garbage bins, serving as primary waste collection points within the kitchen. They are a plastic-free solution for waste containers.

Pros

Metal bins with lids are one solution to garbage containers that are plastic-free. A major advantage to a steel garbage bin is that they will never retain the odor that rubber or plastic bins do over time, which makes the work environment much more pleasant for the staff that deal with refuse removal each day.

Cons

Galvanized steel bins are heavy and harder to clean than plastic. They do make noise when moving, which becomes an issue if customers are within earshot. Depending on the material, they can also rust, which requires frequent monitoring and cleaning. They also do not come in many different sizes, so they can be inconvenient in the dish room. While there are stainless steel versions that come in a "slim jim" style and shape, they are very expensive.

6. Disposable Food Grade Gloves

Disposable food grade gloves are used in kitchens primarily to prevent bacteria transfer from hands to food products. For restaurants aiming to reduce plastic waste, viable substitutes include **biodegradable disposable gloves** and an increased emphasis on **washing hands** more regularly. These alternatives will divert approximately 20,000-25,000 single-use gloves from landfills annually, significantly reducing plastic/nitrile waste.

Cost and Usage Analysis

This evaluation compares the estimated costs and operational implications of conventional disposable food grade gloves versus non-plastic alternatives, or shifts in procedure, in a restaurant setting.

Disposable Food Grade Glove

Details	Made from nitrile, vinyl, or latex, these gloves are widely used to prevent bacteria transfer from hands to food products. They are designed for single use and are replaced frequently in busy kitchen environments to maintain hygiene standards.	
General Market Price	(Per Case of 1,000 gloves): \$36 - \$150 (Prices vary by material, thickness, and market conditions; nitrile is often on the higher end, vinyl lower).	
Estimated Price (Monthly Cost)	\$200 - \$750+ (Assuming a restaurant with multiple staff uses 200-500+ pairs per day, leading to 6,000-15,000+ gloves per month. This translates to roughly 6-15 cases per month, or more for larger/busier operations with high turnover).	
Labor Note	Low labor per use for donning and doffing. However, the high frequency of changing means significant time spent on this task throughout the day. Disposal adds to waste management labor.	

Biodegradable Disposable Glove

Details	Plant-based gloves designed to break down more readily than conventional plastic gloves. They aim to offer the same barrier protection as plastic gloves while being more environmentally friendly at disposal.	
General Market Price	(Per Case of 1,000 gloves): \$130 - \$250+ (Significantly higher than standard plastic gloves, often 50-100% more expensive).	
Estimated Price (Monthly Cost)	\$300 - \$1,500+ (Due to higher per-unit cost and potential for more frequent replacement if less durable than plastic, leading to a higher monthly expenditure).	
Labor Note	Similar per-use labor to plastic gloves for donning and doffing. If they are less durable, they may need to be changed more frequently, increasing labor.	

Usage & Procedures

Biodegradable plant-based gloves function the same as plastic gloves. While using biodegradable gloves offers a simple solution to the plastic problem, it does not address the deeper issue of adding more waste to our system and creating a culture of disposability in our kitchens.

Pros

We have been testing the various biodegradable gloves that are on the market now. While they are effective in their role as creating a barrier between the hand and the food, they are approved for most state health department regulations and so they can be used in accordance with the law.

Cons

Biodegradable gloves do not have the flexibility, smoothness, and utility as their rubber counterparts. While they are effective, they still represent a single-use item that contributes to the waste stream, even if biodegradable. Their added cost and potentially lower durability (requiring more frequent changes) can make them a significant financial burden.

Details	This is an operational shift prioritizing frequent and rigorous handwashing as the primary method of preventing bacteria transfer, minimizing or eliminating the need for disposable gloves. It relies on strict hand washing policies and employee education.	
Market Price	N/A (Not a product purchase)	
Estimated Price (Monthly Cost)	\$50 - \$200+ (This cost is primarily for increased water and soap consumption, and the 'hidden' labor cost of additional handwashing time. This is often significantly less than the cost of disposable gloves, especially when considering the volume of gloves used.)	
Labor Note	Requires more frequent breaks for staff to wash hands, potentially impacting workflow initially. However, it eliminates the labor of donning/doffing gloves and managing glove waste.	

Washing Hands

Usage & Procedures

Our plan is to develop a system of hand washing and sanitation that ensures that foods are not contaminated – and that customer fears are assuaged without a need for copious amounts of waste. There is also a need for further education that disproves the notion that manipulating ingredients with bare hands is unsafe and unsanitary. Our kitchen institutes strict hand washing policies and we encourage our chefs to take the necessary breaks to properly

hand wash after each step in the food preparation process.

Pros

Our data has shown that disposable gloves can be one of the most abundant single-use materials in a kitchen, and this wasteful process is deemed unnecessary if proper handwashing techniques are enforced. We believe that the skin of the human hand is no less a sanitary surface as a rubber glove if hand washing is implemented. Because the disposable glove cannot be washed, we have witnessed that gloves were often being worn for a longer time than was safe; if the worker did not have the glove on, he or she would have been washing his or her hands with more frequency. A proper hand washing policy, along with being in accordance with all other safety and health measures, is believed to be the safest method for food preparation.

Research indicates that frequent, proper hand washing often surpasses the hygiene offered by gloves due to several factors:

- False Sense of Security: Studies show that when wearing gloves, food handlers are significantly less likely to wash their hands and may feel a false sense of cleanliness, leading to prolonged use of contaminated gloves and increased risk-taking. For instance, a 2011 study by the Centers for Disease Control and Prevention (CDC) observed that food service workers were less likely to wash hands before donning gloves, and glove use did not guarantee hand hygiene compliance.¹
- **Bacterial Proliferation**: The warm, moist environment inside gloves can actually create a breeding ground for bacteria, which can then transfer to food if gloves are not changed frequently. If a glove is punctured, bacteria can easily transfer from the hand to food.²
- **Cross-Contamination Risk**: Gloves can pick up bacteria from dirty surfaces (e.g., refrigerator handles, raw meat) and transfer them to ready-to-eat foods just as easily as unwashed hands if not changed between tasks. Many observational studies show that food handlers often do not change gloves as frequently as required.³
- **Microplastic Contamination**: While direct studies linking significant microplastic contamination from disposable gloves to food during normal use are limited, the wear and tear of gloves, especially low-quality vinyl gloves, can lead to the shedding of tiny plastic particles. This is a growing concern, as microplastics are pervasive in the environment and food supply. Nitrile gloves, while generally more durable, are still

¹ Centers for Disease Control and Prevention (CDC). "Hand Hygiene and Glove Use Among Food Service Workers." Morbidity and Mortality Weekly Report, Vol. 60, No. 49 (2011), pp. 1672-1676. https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6049a4.htm.

² "Gloves: A Double-Edged Sword in Food Safety." Food Safety Magazine. <u>https://www.foodsafetymagazine.com/magazine-archive1/june-july-2003/gloves-a-double-edged-sword-in-food-safety/</u>.

³ National Restaurant Association Educational Foundation. ServSafe Manager. Refer to relevant chapters on personal hygiene and glove use. <u>https://www.servsafe.com/ServSafe-Manager</u>.



synthetic and contribute to plastic pollution.⁴

• **Encourages Better Habits**: A rigorous handwashing policy encourages staff to internalize good hygiene practices rather than relying on a disposable barrier.

Cons

This approach requires strict adherence to handwashing protocols and a shift in kitchen culture. It needs to be carefully implemented to ensure compliance with local health department regulations, as some states mandate glove use for ready-to-eat foods. There is also a need for further education to address customer perceptions that may view bare-hand food manipulation as unsafe.

7. To Go Containers, Plastic Cutlery and Plastic Bags

To-go containers, plastic cutlery, and plastic bags are used to provide customers with a vessel for carry-out foods. For restaurants looking to transition away from conventional plastics, viable substitutes include **biodegradable plant-based containers, cutlery, and bags**, or the operational decision of **not offering takeout**. These alternatives will prevent the disposal of approximately a few hundred single-use plastic takeaway containers, hundreds of plastic cutlery pieces, and a notable number of plastic bags annually, directly reducing packaging waste and microplastic pollution.

Cost and Usage Analysis

This analysis examines the financial and operational implications of conventional plastic take-out packaging versus plant-based alternatives and the strategic decision to reduce or eliminate takeout services.

To Go Containers, Plastic Cutlery and Plastic Bags		
Details	These are the most common and lowest-cost options for packaging carry-out food. Plastic containers are typically made from polystyrene (Styrofoam), polypropylene (PP), or polyethylene terephthalate (PET). Plastic cutlery is usually polystyrene or polypropylene. Plastic bags are typically HDPE or LDPE.	

⁴ Environmental Working Group (EWG). "Microplastics in Food." <u>https://www.ewg.org/areas-of-work/food-health/microplastics</u>.

General Market Price (Per Unit)	Containers	8-32 oz, 150-250 count/case	\$0.15 - \$0.50 per container, or \$25 - \$120 per case.
	Cutlery	1000 count/case	\$0.015 - \$0.04 per piece, or \$15 - \$40 per case.
	Bags	500-1000 count/case	\$0.02 - \$0.08 per bag, or \$10 - \$80 per case
Estimated Price (Monthly Cost)	\$300 - \$1,500+ (Highly variable based on volume of takeout orders. A busy restaurant could easily use 10+ cases of containers, 5+ cases of cutlery, and 10+ cases of bags monthly).		
Labor Note	Low labor cost for packaging and assembly. Minimal storage space required compared to reusables.		

Biodegradable Plant-based Containers, Cutlery, and Bags

Details	These alternatives are made from renewable resources such as sugarcane bagasse (containers), CPLA (cutlery), PLA (cups/linings), and kraft paper or bioplastics (bags). They are designed to function similarly to their plastic counterparts but with a reduced environmental footprint, ideally breaking down in industrial composting facilities.		
General Market			
Price (Per Unit)	Containers	8-32 oz, 150-250 count/case	\$0.30 - \$1.00+ per container, or \$50 - \$250+ per case (e.g., Bagasse containers can be ~ \$0.50 - \$1.00+ per piece).
	Cutlery	1000 count/case	\$0.04 - \$0.08 per piece, or \$40 - \$80 per case (e.g., PLA cutlery can be \$0.04 - \$0.07 per piece).
	Bags	500-1000 count/case	\$0.05 - \$0.15+ per bag, or \$25 - \$150+ per case (Compostable bags are generally higher than paper).
Estimated Price (Monthly Cost)	\$600 - \$3,000+ (These options typically cost 50-200% more than conventional plastic, significantly increasing monthly expenditure. This higher cost can be partially offset by passing it onto the consumer or through waste reduction strategies).		

Labor Note	Similar labor for packaging and assembly as plastic. May require more dedicated storage space if different shapes/sizes are used. Requires consumer education regarding proper disposal (industrial composting
	vs. landfill).

Usage & Procedures

Biodegradable plant-based containers, cutlery, and bags function the same as plastic alternatives. While paper-based and biodegradable containers have been in use for a while, we plan on diving deep into the latest technologies in this category.

Pros

There are a wide variety of options now for to-go containers and cutlery. While generally more expensive than plastic and Styrofoam alternatives, taking into consideration the massive amounts that are used daily and the incredible harm they are doing to the environment, we believe this is a step that is urgently needed. The prices are becoming more affordable to an extent that the costs of the biodegradable version can be passed onto the consumer. Choosing these options demonstrates a commitment to sustainability, which can appeal to environmentally conscious customers.⁵

Cons

Biodegradable and compostable packaging generally has higher initial costs due to raw materials and specialized production processes.⁶ While designed to break down, many require industrial composting facilities which are not universally available, meaning they may still end up in landfills where they can decompose slowly and potentially produce methane, a potent greenhouse gas.⁷ Some plant-based packaging also contains PFAS (per- and polyfluoroalkyl substances) for grease and moisture resistance, raising health and environmental concerns.⁸

Not Offering Takeout (Operational Shift)

⁵ Grand View Research. "Eco-friendly Food Packaging Market | Industry Report, 2030." May 2025. (<u>https://www.grandviewresearch.com/industry-analysis/eco-friendly-food-packaging-market-report</u>)

⁶ Zenpacks. "Biodegradable vs. Traditional Packaging: Cost Comparison." <u>https://www.zenpacks.com.au/post/the-cost-of-biodegradable-packaging-vs-traditional-packaging-what-to-</u> expect.

⁷ Today's Dietitian. "Food Service Forum: Switching to Sustainable Packaging." <u>https://www.todaysdietitian.com/newarchives/0225p10.shtml</u>.

⁸ Environmental Working Group (EWG). "Toxic Chemicals in Food Packaging Must Go." EWG News & Insights, 10 January 2024.

https://www.ewg.org/news-insights/news/toxic-chemicals-food-packaging-must-go.

coupled with a review of portion sizes to minimize leftovers.		
General Market Price (Per Unit)	N/A (Operational strategy, not a product purchase).	
Estimated Price (Monthly Cost)	Potentially significant cost savings by eliminating disposable packaging purchases entirely. However, it may impact revenue if a large portion of the customer base relies on takeout.	
Labor Note	Eliminates labor associated with packaging takeout orders. May require a shift in kitchen operations to focus more on dine-in efficiency. If implementing portion control, there could be initial training and menu adjustments.	

Usage & Procedures

This approach involves a re-evaluation of food portioning. Conventional wisdom in many restaurants was to create an oversized portion for menu items so that customers would have leftovers to take home, thus creating a sense of value. Our approach is to create a sensible portion-controlled meal that will not lead to a culture of taking home leftovers.

Pros

This approach to dish portions leads to less waste in food and fewer containers in the environment. It also lessens the temptation to overeat for customers and creates a system where quality is prioritized over quantity, which can lead to using better ingredients in the food. Consistent portion sizes also improve cost control, inventory management, and can enhance customer satisfaction by offering a balanced meal.⁹ From an environmental perspective, reducing overall food waste and packaging waste at the source is the most impactful strategy.¹⁰

Cons

This is not an approach that will be widely accepted by all restaurants and may face consumer resistance, as many customers, especially younger demographics, strongly desire and rely on takeout and delivery options.¹¹ Eliminating takeout could significantly impact revenue, particularly for restaurants that have built a business model around off-premise dining. It requires a fundamental shift in marketing and customer value perception.

⁹ Applova. "Importance of Keeping Portion Sizes Consistent for Restaurants in 2024." https://applova.io/blog/importance-of-keeping-portion-sizes-consistent-for-restaurants-in-2024/.

 ¹⁰ ReFED. "Roadmap to 2030: Reducing U.S. Food Waste." <u>https://www.refed.org/roadmap</u>.
 ¹¹ National Restaurant Association. "Report: Takeout, drive-thru, delivery are more popular than ever."<u>https://restaurant.org/education-and-resources/resource-library/report-takeout-drive-thru-delivery-ar</u>
 <u>e-more-popular-than-ever/</u>.

8. Portion Bags and Cups

Portion bags and cups are common for achieving precise ounce usage or scooping during food plating and preparation. For kitchens aiming to reduce single-use plastics, viable substitutes include **precise scooping** with reusable tools or using a **ladle**. To ensure uniformity, we also use **precision scales for accurate weighing** and **wooden or steel rulers** for consistent physical measurement. These alternatives will eliminate the use and disposal of approximately 3,000-8,000 single-use plastic portion bags and cups annually.

Cost and Usage Analysis

This analysis evaluates the financial and operational aspects of using single-use plastic portion bags and cups versus shifting to reusable tools and refined techniques for portion control in a restaurant setting.

Details	This category includes small plastic portion cups (e.g., 2 oz, 4 oz, 5.5 oz) with lids, often made from polypropylene (PP) or PET, and disposable plastic piping bags. They are widely used for precise pre-portioning of sauces, purees, garnishes, and other ingredients to ensure consistency and exact ounce usage in food plating and preparation.	
General Market Price (Per Unit)	 Plastic Portion Cups with Lids (2 oz - 5.5 oz, 1000-2500 ct/case): \$40 - \$120 per case. Disposable Piping Bags (1000 ct/box): \$20 - \$60 per box. 	
Estimated Price (Monthly Cost)	 \$150 - \$600+ (A busy kitchen might use 2-5+ cases of portion cups and several boxes of piping bags per month, depending on menu complexity and volume). Low labor per use for filling and sealing. Efficient for large-batch prep and quick service. Disposal adds to waste management labor. 	
Labor Note		

Portion Bags and Cups

Scooping

General Market Price (Per Unit)	\$10 - \$30 per stainless steel portion scoop.
Estimated Price (Monthly Cost)	Initial investment of \$50 - \$200 for a range of commonly used scoop sizes. Recurring monthly cost of \$0 - \$5 (for very infrequent replacements due to loss or damage; these tools are exceptionally durable).
Labor Note	Requires initial staff training and calibration to ensure consistent and exact ounce usage without the visual cue of pre-portioned bags/cups. Once trained, labor per portion can be similar to or even more efficient than using single-use items for batch prep. Eliminates labor of ordering, stocking, and disposing of plastic portion cups/bags.

Usage & Procedures

Instead of relying on single-use portion bags and cups, we define exact portioning through precise **scooping** techniques. This involves using **standardized**, **calibrated scoops** appropriate for the consistency of the ingredient. Staff are trained to consistently fill and level scoops to achieve the desired ounce measurement. For many items, portioning now occurs à la minute during plating or preparation, which can also contribute to freshness and quality.

Pros

This method offers significant cost savings by eliminating the ongoing purchase of single-use portion cups. It dramatically reduces plastic waste generated in the kitchen. Using standardized scoops allows for excellent portion consistency once staff are trained, and they are highly durable and reusable tools. This approach encourages skilled execution and supports a more sustainable kitchen culture.

Cons

There is an initial investment in acquiring a full set of high-quality scoops in various sizes. The primary challenge lies in staff training and maintaining consistency across all shifts and cooks, as it relies on technique rather than pre-packaged portions. This requires diligent oversight to ensure accuracy.

Ladle

Details	This method utilizes reusable ladles, typically stainless steel, available in precisely measured capacities (e.g., 1 oz, 2 oz, 4 oz, 6 oz). Ladles are particularly well-suited for portioning liquids such as sauces, vinaigrettes, soups, and gravies, offering controlled dispensing directly onto plates or into serving vessels.

General Market Price (Per Unit)	\$8 - \$25 per stainless steel ladle (varies by size and quality).
Estimated Price (Monthly Cost)	Initial investment of \$50 - \$150 for a range of commonly used ladle sizes. Recurring monthly cost of \$0 - \$5 (for very infrequent replacements due to loss or damage; these tools are built to last).
Labor Note	Requires initial staff training on accurate ladle technique for consistent portioning. Washing and storage are standard for reusable kitchen tools. Can facilitate rapid, consistent portioning of liquids.

Usage & Procedures

Instead of using single-use portion bags or cups for liquid ingredients, we precisely portion using standardized ladles. This means that when a recipe calls for a specific liquid measure, such as "2 ounces," it is accurately dispensed using a calibrated 2-ounce ladle. This ensures consistency in flavor and presentation, while entirely bypassing the need for disposable portioning vessels. Mixing bowls for sauces and vinaigrettes will need to be stirred or mixed with each order to guarantee proper emulsification, as the "shaking" action of a squeeze bottle is no longer present.

Pros

Utilizing ladles for portioning liquids provides significant cost savings by eliminating the purchase of disposable liquid portion cups. It directly reduces plastic waste. Ladles are highly durable, easy to clean, and long-lasting tools. This method supports precise portion control for liquids and promotes a more sustainable and skilled kitchen environment. For vinaigrettes, mixing à la minute with a ladle ensures freshness of flavor that is often compromised by bulk storage in plastic squeeze bottles.

Cons

There is an initial investment in acquiring a comprehensive set of various sized ladles. As with scooping, staff training and consistent technique are crucial to ensure accurate portioning without pre-measured disposable items. This method requires a shift in plating style for sauces, moving from intricate "drizzles" or "dots" to a more organic, ladled presentation.

9. Cryovac Bags

Cryovac bags are typically used in kitchens to vacuum seal food, extending shelf life, and helping store more food when kitchen and refrigerator space is limited. For those seeking alternatives, the primary substitute is an operational shift towards **getting food fresh and only ordering portions** as needed. These alternatives will prevent the disposal of approximately 500-2,000 plastic cryovac bags annually, eliminating single-use plastic from food preservation processes.



Cost and Usage Analysis

This analysis examines the financial and operational implications of using single-use Cryovac bags for food storage versus implementing a fresh, just-in-time ordering system.

Cryovac Bags	
Details	Cryovac (vacuum seal) bags are plastic pouches used with vacuum sealing machines to remove air from food packaging. This extends shelf life, prevents freezer burn, aids in marination, and can consolidate food storage in limited kitchen and refrigerator space. They are typically made from multi-layer plastic film (e.g., nylon/polyethylene).
General Market Price (Per Unit)	Commercial Vacuum Seal Bags (e.g., 8"x10" to 11"x 16", 500-1000 ct/case): \$50 - \$200+ per case (price varies by size, thickness, and quantity). For example, 500 bags of 8"x10" 3-mil bags can cost around \$60-\$80 per case.
Estimated Price (Monthly Cost)	\$100 - \$500+ (Highly dependent on kitchen volume and reliance on vacuum sealing for prep/storage. A busy restaurant could easily use several cases per month).
Labor Note	Requires labor for bagging and operating the vacuum sealer. Reduces labor for frequent stock rotation of perishable items due to extended shelf life. Reduces food waste disposal labor.

Pros

Cryovac bags significantly extend the shelf life of perishable ingredients, reducing spoilage and minimizing food waste.¹² They prevent freezer burn, maintain food quality (flavor, moisture, nutritional value) by preventing oxidation, and allow for efficient organization and space saving in refrigerators and freezers. They are also essential for sous-vide cooking. This can lead to cost savings by allowing bulk purchasing and reducing spoilage.

Cons

The most significant drawback is their environmental impact, as they are single-use plastic and contribute to plastic waste. While they extend shelf life, vacuum sealing does not eliminate the risk of all bacterial growth; anaerobic bacteria like Clostridium botulinum can thrive in low-oxygen environments if food is not properly handled and stored at correct temperatures. There's also an initial investment in a vacuum sealing machine. Some studies also suggest potential for nutrient degradation for certain heat-sensitive vitamins in the

¹² First Food Machinery. "Why our restaurant would benefit from vacuum packing." <u>https://www.firstfoodmachinery.co.uk/blog/19822-why-your-restaurant-would-benefit-from-vacuum-packing</u>.

absence of oxygen over time.13

Getting Food Fresh and Only Ordering Portions as Needed (Operational Shift)

Details	This strategy prioritizes a "just-in-time" (JIT) inventory approach, relying on frequent, smaller deliveries of fresh ingredients tailored to immediate demand. This minimizes the need for extensive in-house preservation techniques like vacuum sealing. For restaurants like SHIA, with a reservation system, this allows for highly accurate forecasting.
General Market Price (Per Unit)	N/A (This is an operational strategy that impacts purchasing costs, rather than a direct product purchase).
Estimated Price (Monthly Cost)	Potentially significant cost savings from reduced food waste, estimated to be 4-10% of food purchases for restaurants. ¹⁴ Eliminates the cost of Cryovac bags and the initial investment/maintenance of vacuum sealing equipment. However, it may involve higher per-unit purchasing costs for smaller orders or increased delivery fees if not managed efficiently with suppliers.
Labor Note	Reduces labor associated with vacuum sealing. May increase labor for more frequent receiving and quality checks of deliveries. Requires strong communication and coordination with suppliers. Shifts kitchen labor focus from preservation to immediate preparation.

Usage & Procedures

Instead of getting all the meat in advance, we order smaller portions of what we need only at a time. Since all experiences at SHIA require a reservation, we know the number of guests and what they may need in advance, allowing us to prepare exactly that portion. At times, we may have an unexpected allergy or change, so we are constantly assessing and improving our forecasting. This approach also requires a different cooking method; we are training our chefs to revisit traditional cooking methods using fresh meat on a pan instead of defrosting meat, which many may have done at other restaurants.

Pros

This operational shift offers significant benefits, starting with superior freshness and quality of ingredients, directly enhancing the dining experience. A just-in-time inventory system leads to substantial waste reduction by precisely matching purchases to demand, resulting in

¹³ KimEcopak. "5 Disadvantages of Vacuum Sealing Food and the Alternatives Solutions." <u>https://www.kimecopak.ca/blogs/news/disadvantages-of-vacuum-sealing-food</u>.

¹⁴ Supy. "Reducing Food Waste to Lower Restaurant Costs." <u>https://supy.io/blog/the-impact-of-food-waste-on-restaurant-food-costs-and-how-to-reduce-it</u>.

considerable cost savings from less spoilage and disposal. It also improves kitchen efficiency by reducing storage needs and complexity, offers enhanced menu flexibility, and significantly boosts the restaurant's overall sustainability.

Cons

However, this approach comes with challenges. It demands extreme reliance on highly dependable suppliers for frequent, flexible deliveries, making the restaurant vulnerable to supply chain issues. This model can lead to higher per-unit purchasing costs due to smaller order volumes and increased delivery fees. The reduced buffer stock means less flexibility for unexpected demand or supplier problems. Finally, it requires increased management complexity for precise forecasting and chef retraining for cooking fresh, not defrosted, ingredients.

10. Silicone Molds and Mats

Silicone molds and mats are typically used in kitchens to mold food into specific shapes or to provide a non-stick baking surface. At SHIA, the substitute is an operational decision: we don't use them at all, relying instead on alternative methods and equipment. These alternatives will avoid the disposal of approximately 20-50 plastic molds and mats annually, replacing them with highly durable, inert, and long-lasting alternatives that do not degrade or shed microplastics with heat.

Cost and Usage Analysis

This analysis evaluates the financial and operational aspects of using conventional silicone molds and mats versus an operational strategy of not using them and relying on traditional kitchen equipment.

Details	Made from food-grade silicone, these flexible tools are used for baking, freezing, and shaping various food items (e.g., pastries, chocolates, ice creams, molded desserts). Silicone mats (like Silpats) provide a reusable, non-stick surface for baking sheets, eliminating the need for parchment paper or greasing.
General Market Price (Per Unit)	Silicone Baking Molds (e.g., standard loaf, muffin, specialty shapes): \$10 - \$50+ per mold (price varies widely by size, complexity, and brand; commercial quality is higher).

Silicone Molds and Mats

	Silicone Baking Mats (e.g., 18"x26" full-size sheet): \$15 - \$30 per mat. Often sold in multipacks for commercial use.
Estimated Price (Monthly Cost)	Initial investment of \$200 - \$1,000+ for a functional set of various molds and mats. Recurring monthly cost of \$10 - \$50 (for occasional replacement due to wear, cuts, or loss, as they are relatively durable if cared for properly).
Labor Note	Reduces labor for greasing pans or cutting parchment paper. Easy to clean compared to intricate metal molds. Flexible material allows for easy release of molded items.

Pros

Silicone molds and mats offer non-stick properties, making food release easy and cleanup simpler compared to traditional pans. They are highly flexible, allowing for intricate shapes and easy demolding without damaging delicate items. They are durable and reusable, reducing waste from parchment paper or single-use liners. Silicone can withstand a wide range of temperatures, making them suitable for baking, freezing, and even some cooking applications. Their reusability can lead to long-term cost savings compared to disposable alternatives.

Cons

Silicone items often have a higher initial cost than traditional metal bakeware or disposable options. They can be less rigid than metal, requiring support (e.g., baking sheets underneath molds) which can be cumbersome. Some cheaper silicone products may retain odors or leach chemicals if not of high food-grade quality.¹⁵ They do not conduct heat as efficiently as metal, which can sometimes impact baking times or crust development. Over time, they can wear out or become sticky if not properly cared for.

Not Using Them (Operational Shift to Traditional Methods)

¹⁵ 3D Insider. "Is Silicone Cookware Safe to Use? A Comprehensive Guide to Silicone Safety." <u>https://3dinsider.com/silicone-safety/</u>.

General Market Price (Per Unit)	There is no market price for "not using" a product. For the functions that silicone molds or metal bakeware might otherwise serve, SHIA leverages its existing non-metal, non-silicone non-stick tray system for ovens. Therefore, there is no direct new purchase cost associated with replacing molds, as the focus is on a procedural and philosophical shift. Consumables like parchment paper (commercial roll, 1000-2000 sq ft: \$40 - \$100 per roll) might still be used as a lining for specific preparations on these trays.
Estimated Price (Monthly Cost)	This approach offers significant cost savings by entirely eliminating the purchase of silicone molds/mats and traditional metal bakeware for these applications. The only potential recurring cost would be for consumable liners like parchment paper, if used. Thus, the estimated monthly cost is effectively \$0 - \$100+ (depending on parchment paper usage).
Labor Note	This shift places a greater emphasis on the chef's skill in manual shaping and organic presentation, potentially increasing hands-on preparation time for certain dishes. It eliminates labor associated with cleaning and storing a variety of molds and specialized bakeware. Cleaning of their unique non-stick trays would be a standard part of kitchen cleanup.

Usage & Procedures

At SHIA, we simply do not use silicone molds or mats. Instead, we embrace a truly organic approach to food preparation, allowing ingredients to take their natural form or be shaped by hand. For all oven-based cooking, we rely on our specialized non-stick tray system for the ovens, which is neither silicone or metal. This fundamentally changes our process, meaning we do not aim for rigidly molded shapes but rather focus on the inherent beauty and integrity of the food as it is prepared.

Pros

This approach offers complete freedom from synthetic materials (silicone) and traditional metals in specific food preparation steps, aligning strongly with a pure, plastic-free, and potentially metal-free kitchen philosophy. It eliminates all purchase costs associated with molds and specialized bakeware. It fosters greater culinary creativity and skill in shaping and presenting food organically, promoting a unique aesthetic. By focusing on natural forms, it can also lead to simpler recipes and a clearer expression of the ingredients' qualities.

Cons

This strategy severely limits the ability to create dishes requiring precise, intricate, or standardized molded shapes, which might impact certain menu items or presentations that rely on such aesthetics. It demands a high level of chef skill for consistent manual shaping. Without the defined structure of molds, maintaining uniformity in appearance and portion size
can be more challenging and time-consuming, requiring diligent training and oversight. It also means certain cooking techniques or recipes that specifically benefit from silicone's flexibility or precise molding capabilities cannot be easily replicated.

11. Nonstick pan

Nonstick pans, commonly featuring coatings like Teflon, are frequently used in cooking to prevent food from sticking. However, a significant concern with their usage is the creation of microplastics. For kitchens committed to avoiding these issues, the primary substitutes are steel and stainless steel pans, which offer durable, non-toxic cooking surfaces. These alternatives will prevent the disposal of approximately 12-60 non-stick pans with plastic-based coatings annually, reducing the release of harmful chemicals and microplastics into food and the environment.

Cost and Usage Analysis

This analysis compares the financial, operational, and health implications of using conventional nonstick pans versus durable steel and stainless steel alternatives in a restaurant kitchen.

Details	Nonstick pans typically feature a fluoropolymer coating (e.g., PTFE, commonly known as Teflon) applied over a metal base (aluminum or stainless steel). They are favored for their ability to release food easily with minimal oil, making them popular for delicate foods like eggs, fish, and pancakes.
General Market Price (Per Unit)	\$20 - \$80 per commercial-grade nonstick frying pan (price varies by size, material, and brand). Often sold in sets or bulk for restaurants.
Estimated Price (Monthly Cost)	\$100 - \$400+ (Nonstick pans have a significantly shorter lifespan in a commercial kitchen compared to other pans, often requiring replacement every 3-5 months due to coating degradation, chips, or scratches. A busy kitchen might replace several pans monthly).
Labor Note	Easy cleanup due to food release. Requires careful handling (e.g., no metal utensils) to preserve coating, which can increase labor for training and maintenance.

Nonstick Pan

Pros

Nonstick pans make it easy to cook delicate items like eggs, fish, and crêpes without sticking. They require less oil or fat for cooking, which can be beneficial for health-conscious menus and reduce ingredient costs. Their easy food release also leads to quicker and simpler

cleanup.

Cons

A major concern is that every time you use a nonstick pan, especially at high temperatures or with abrasive utensils, microplastics are created from the non-stick coating. Research indicates that PTFE coatings can shed micro- and nano plastic particles, which can enter food.¹⁶ These coatings also degrade over time, especially when exposed to high heat or scratched, leading to a shorter lifespan and frequent replacement in commercial settings. The manufacturing of older nonstick coatings involved PFOA and PFOS, which are persistent environmental pollutants and health concerns, though newer pans are largely PFOA/PFOS-free, the PTFE itself remains a concern.¹⁷

Steel and Stainless Steel Pans

Details	These pans are made entirely of metal, either carbon steel (iron and carbon) or stainless steel (iron alloy with chromium). They are known for their durability, excellent heat retention (especially carbon steel), and ability to develop a natural non-stick patina (carbon steel) or provide a robust searing surface (stainless steel).
General Market Price (Per Unit)	 Commercial Stainless Steel Frying Pan: \$30 - \$120+ per pan (price varies by ply, size, and brand; typically a higher initial investment than nonstick). Commercial Carbon Steel Frying Pan: \$25 - \$90+ per pan (similar to stainless steel, but often slightly less supervise per pan(similar to stainless steel, but often slightly
Estimated Price (Monthly Cost)	Initial investment of \$200 - \$800+ for a complete set of various sizes. Recurring monthly cost of \$0 - \$10 (These pans are extremely durable and can last decades with proper care, requiring very infrequent replacement. The main ongoing cost is for cleaning supplies and potentially oil for seasoning carbon steel).
Labor Note	Requires different cooking techniques and more skill to prevent sticking. Carbon steel requires seasoning maintenance. Cleaning can be more challenging if food sticks. Less concern about scratching with metal

¹⁶ Brueck, Hilary. "Microplastics from nonstick cookware may end up in your food, according to new research." Business Insider, 17 November 2022.

https://www.businessinsider.com/microplastics-from-nonstick-cookware-may-end-up-in-food-2022-11 and National Center for Biotechnology Information (NCBI). "Microplastic pollution from Teflon coating in non-stick cookware." Science of The Total Environment, Volume 858, Part 2, 2023, 160074. https://pubmed.ncbi.nlm.nih.gov/36379207/.

¹⁷ Environmental Working Group (EWG). "What are PFAS chemicals?" <u>https://www.ewg.org/what-are-pfas-chemicals</u>.

utensils.

Usage & Procedures

Instead of using nonstick pans, we utilize steel and stainless steel pans, which necessitates cooking differently. For instance, searing fish or other proteins requires precise temperature control and proper fat usage to achieve a non-stick release and an excellent crust, a technique our chefs are trained to master. This approach revisits traditional cooking methods focused on the inherent properties of the pan and ingredients.

Pros

Steel and stainless steel pans are exceptionally durable and can last for decades, making them a long-term investment. They do not shed microplastics or hazardous chemicals into food, offering a safer cooking surface. Stainless steel is excellent for searing and browning due to its ability to develop a strong crust, enhancing flavor.¹⁸ Carbon steel, when properly seasoned, develops a natural non-stick patina over time that is comparable to, and often superior to, synthetic coatings. They are also oven-safe (without non-plastic handles) and can withstand much higher temperatures than nonstick pans.

Cons

These pans require more skill and precise technique to prevent food from sticking, especially stainless steel, which needs careful temperature management and sufficient preheating. Carbon steel pans require regular seasoning and maintenance to build and retain their non-stick properties, which is an additional labor step. They can be heavier than aluminum-based nonstick pans, which might be a consideration for high-volume work. Cleanup can be more challenging if food does stick or burn, sometimes requiring more abrasive cleaning or soaking.

12. Rubber Spatula

Rubber spatulas are versatile kitchen tools primarily used for mixing, scraping, and folding ingredients, particularly essential in baking and various cooking applications. At SHIA, our approach to substitutes is a strategic re-evaluation: we generally rethink processes that rely heavily on a spatula, opting to use **"hospital grill silicone platinum"** only when absolutely necessary for specific tasks. These alternatives will avoid the disposal of approximately 30-60 plastic or plastic-handled spatulas annually, preventing plastic degradation and potential microplastic transfer to food.

¹⁸ Laura F. "Stainless Steel Cookware: Pros & Cons." LeafScore, 19 January 2024. <u>https://www.leafscore.com/eco-friendly-kitchen-products/stainless-steel-cookware-pros-cons/</u>



Cost and Usage Analysis

This analysis examines the financial and operational implications of using conventional rubber spatulas versus a specialized, high-grade silicone alternative, coupled with a procedural shift to minimize spatula reliance in the kitchen.

Rubber Spatula

Details	Traditional rubber spatulas typically feature a rubber or standard silicone head attached to a handle (wood, plastic, or metal). They are valued for their flexibility, heat resistance (to varying degrees), and ability to scrape bowls cleanly, mix batters, and fold delicate ingredients without damaging surfaces.
General Market Price (Per Unit)	\$5 - \$20 per commercial-grade rubber/silicone spatula (price varies by size, heat resistance, and material quality). Often purchased in sets or bulk.
Estimated Price (Monthly Cost)	\$28 - \$113+ (While individual spatulas are inexpensive, they can wear out, stain, or get damaged/lost in a busy kitchen, requiring regular replacement, often every 3-5 months depending on use and quality).
Labor Note	Easy to use for a wide range of tasks. Relatively easy to clean. Requires replacement when heads crack, melt, or detach.

Pros

Rubber spatulas are highly versatile for a wide array of kitchen tasks from mixing and scraping to folding. Their flexible heads allow for efficient scraping of bowls and pans, minimizing food waste. They are generally non-abrasive to cookware surfaces and are available in various heat resistances, making them suitable for many cooking and baking temperatures. Their relatively low individual cost makes them accessible.

Cons

Many conventional rubber or silicone spatulas can degrade over time with heat exposure, leading to cracking, melting, or becoming sticky. They can also absorb odors and stains from strong ingredients. Lower quality rubber/silicone may contain fillers or be less durable, potentially leading to small pieces breaking off into food. While less studied for microplastic shedding compared to nonstick pans, synthetic rubber/silicone can undergo degradation over time.

Hospital Grill Silicone Platinum (Specialized Tool / Operational Shift)

Details This refers to a highly specialized, very high-grade silicone, likely	/
---	---

	platinum-cured silicone, known for its exceptional purity, stability, and extreme heat resistance. Its application at SHIA is as a spatula substitute only when absolutely necessary, implying a deliberate re-evaluation of kitchen processes to reduce reliance on any type of spatula for tasks that can be performed by other means (e.g., whisking, stirring with solid spoons, using hands).
General Market Price (Per Unit)	Given its likely "platinum" grade and potentially "grill" application, these tools would be significantly more expensive than standard spatulas. (Estimating for a commercial-grade, high-heat platinum silicone spatula/scraper: \$25 - \$70+ per piece).
Estimated Price (Monthly Cost)	Initial investment of \$50 - \$200 for a limited number of these specialized tools. Recurring monthly cost of \$0 - \$5 (These high-grade silicones are incredibly durable and long-lasting, requiring very infrequent replacement. The cost is primarily upfront).
Labor Note	Requires training chefs to rethink processes that traditionally use spatulas. When used, the tool's performance (heat resistance, durability) should be superior. Cleaning is straightforward, like other high-grade silicone. The primary "labor" is the re-engineering of workflow to minimize its need.

Usage & Procedures

Our approach involves a fundamental rethinking of how we execute desserts or baking without a general-purpose spatula. This means exploring alternative techniques for mixing, folding, and scraping that do not require such a tool. When an absolute necessity arises for a spatula-like function, particularly involving extreme temperatures or specific molding/scraping tasks, we selectively use the "Hospital grill silicone platinum" tool. This high-grade silicone is chosen for its superior heat resistance and purity, ensuring safety and performance for critical applications.

Pros

This operational shift drastically reduces reliance on versatile, yet disposable, synthetic tools, aligning strongly with a plastic-free and minimalist kitchen philosophy. By using "Hospital grill silicone platinum" only when essential, it leverages a material known for its exceptional purity and stability, potentially reducing concerns about chemical leaching or degradation compared to standard silicone.¹⁹ The high heat resistance of platinum-cured silicone makes it incredibly durable and long-lasting, requiring very infrequent replacement. The focus on alternative techniques can also foster culinary innovation and skill among chefs.

¹⁹ Glory Sun Group. "What is platinum silicone?" Glory Sun Group Blog, 21 December 2022. <u>https://www.glorysungroup.com/blog/platinum_silicone</u>

Cons

The primary challenge is the significant re-engineering of kitchen workflows and recipes to minimize spatula use, which can be time-consuming and require extensive chef training. There is an initial higher investment per unit for these specialized, high-grade silicone tools compared to conventional spatulas. Limiting spatula use might make certain tasks, especially in baking or delicate preparations, more challenging or less efficient without the familiar flexibility and scraping ability of a standard spatula. This approach may not be universally applicable for all kitchens or all types of cuisine without considerable adaptation.

13. Chef's Knives with Plastic Handles

Chef's knives with plastic handles are widely used as versatile kitchen tools for a broad range of cutting tasks. However, in a move towards more sustainable and traditional practices, the preferred substitute at SHIA is **chef's knives with wooden handles**. These alternatives will prevent the disposal of approximately 5-15 chef's knives with degrading plastic handles annually, choosing durable and hygienic alternatives that last a lifetime.

Cost and Usage Analysis

This analysis evaluates the financial, operational, and aesthetic considerations of using chef's knives with plastic handles versus those with wooden handles in a professional kitchen environment.

Details	These knives typically feature a steel blade securely attached to a handle made from synthetic materials like polypropylene, POM (polyoxymethylene), or ABS plastic. They are ubiquitous in commercial kitchens due to their low cost, durability, and ease of cleaning.
General Market Price (Per Unit)	\$20 - \$80 per commercial-grade chef's knife with a plastic handle (price varies by blade quality, size, and handle material grade). Often purchased in sets or bulk.
Estimated Price (Monthly Cost)	\$10 - \$50+ (While individual knives are relatively inexpensive and durable, plastic handles can eventually degrade, scratch, or discolor over time, requiring replacement. Loss or damage to blades also contributes to ongoing costs, but less frequently than nonstick pans).
Labor Note	Easy to clean and often dishwasher-safe (though handwashing is generally recommended for blades). Lightweight and generally

Chef's Knives with Plastic Handles

Usage Procedures

Chef's knives with plastic handles are used across all cutting tasks in a professional kitchen due to their robustness and ease of maintenance. They are particularly favored in high-volume environments where quick turnaround and strict hygiene protocols (e.g., dishwasher sanitization) are paramount. The non-porous nature of plastic handles makes them straightforward to wash and sanitize after each use.

Pros

Plastic handles are inherently non-porous and highly resistant to moisture, oils, and bacteria, making them very hygienic and compliant with most food safety regulations. They are generally dishwasher-safe, simplifying cleanup in busy kitchens. Plastic handles are typically lightweight and durable, resistant to cracking, warping, or splintering, offering a consistent feel over time. They are also usually more affordable as an initial purchase.

Cons

Over time, plastic handles can degrade, scratch, or become discolored, especially with repeated high-heat washing or harsh chemicals, which can compromise their appearance and potentially harbor bacteria in deeper crevices. They can sometimes feel less ergonomic or "premium" in hand compared to natural materials. From a sustainability perspective, they contribute to plastic waste at the end of their lifespan and are not biodegradable.

Chef's Knives with Wooden Handles

Details	These knives feature a steel blade paired with a handle crafted from various types of wood (e.g., pakkawood, rosewood, olive wood, walnut). Wooden handles are prized for their natural beauty, ergonomic feel, and often superior grip when wet, but require specific care.
General Market Price (Per Unit)	\$30 - \$150+ per commercial-grade chef's knife with a wooden handle (price varies significantly by blade quality, wood type, and craftsmanship; often higher than plastic handles).
Estimated Price (Monthly Cost)	Initial investment of \$200 - \$1,000+ for a complete set of high-quality wooden-handled knives. Recurring monthly cost of \$0 - \$10 (These knives are built to last for many years, even decades, with proper care. Ongoing costs involve wood conditioning oil and potentially professional sharpening services).
Labor Note	Requires specific care including handwashing, immediate drying, and periodic oiling to prevent drying out or cracking. Cannot be put in a

dishwasher. This adds a small but consistent labor component to daily cleanup and maintenance.
--

Usage & Procedures

At SHIA, we consciously choose chef's knives with wooden handles. Our usage procedures emphasize meticulous hand washing immediately after use, followed by thorough drying. Regular application of food-grade mineral oil is crucial to nourish the wood, prevent it from drying out, cracking, or losing its luster. This contrasts with the lower maintenance of plastic handles but aligns with our commitment to natural materials and traditional craftsmanship.

Pros

Wooden handles offer a superior ergonomic feel and natural grip, often conforming better to the hand over time and providing a more comfortable experience for prolonged use [3]. They possess a classic aesthetic appeal that aligns with a traditional or high-end culinary environment. Wood is a renewable resource and, when responsibly sourced, offers a more sustainable alternative to plastic. With proper care, wooden handles can be extremely durable and long-lasting, becoming prized tools over decades.

Cons

The primary concern with wooden handles in commercial settings is food safety and hygiene, as wood is porous and can theoretically absorb moisture and harbor bacteria if not meticulously cleaned and dried immediately after use. They are not dishwasher-safe, requiring careful handwashing, which adds to labor. Wooden handles are susceptible to cracking, warping, or splitting if repeatedly exposed to moisture, extreme temperatures, or left to air dry improperly. They also require periodic maintenance (oiling) to preserve their integrity and appearance.



FRONT OF HOUSE

14. Permanent Markers

Permanent markers are widely used in kitchens for labeling food containers, noting dates, and general organization. As part of a commitment to reducing single-use items, the preferred substitute is **refillable markers**, which offer a sustainable alternative to disposable options. These alternatives will divert approximately 100-300 non-recyclable plastic markers from landfills annually, reducing small plastic waste from administrative supplies.

Cost and Usage Analysis

This analysis compares the financial, operational, and environmental implications of using conventional disposable permanent markers versus refillable markers in a professional kitchen environment.

Permanent Markers

Details	Disposable permanent markers typically use an alcohol-based ink that is quick-drying and resistant to water, fading, and abrasion. They are commonly used for labeling food prep containers, dating inventory, and writing on various surfaces in a busy kitchen environment.
General Market Price (Per Marker)	\$1 - \$3 per marker individually; \$15 - \$40 for a box of 12-36 markers (price varies by brand, tip size, and quantity).
Estimated Price (Monthly Cost)	\$20 - \$100+ (Markers are frequently used until dry and then disposed of, leading to a continuous purchase cycle. A busy kitchen could easily go through several boxes per month).
Labor Note	Extremely convenient and ready for immediate use. No maintenance required other than replacing the cap. Disposal is quick and simple.

Usage Procedures

Permanent markers are used for quick and clear labeling of mise en place, food storage containers, and inventory bags. Their quick-drying ink and permanence ensure that critical information like dates, contents, and dietary restrictions remain legible throughout storage and preparation, facilitating efficient kitchen operations and food safety compliance.

Pros

Disposable permanent markers are highly convenient and readily available. They offer a low initial cost per unit and require no maintenance or refilling. Their ink is typically durable, quick-drying, and resistant to smudging, making them ideal for fast-paced kitchen environments where labels need to last through various conditions (e.g., refrigeration, freezing).

Cons

The primary disadvantage is their significant contribution to plastic waste. Once the ink runs out, the entire marker casing, often made of various plastics and felt, is discarded, leading to a continuous stream of non-recyclable waste.²⁰ This constant disposal also leads to higher long-term purchasing costs compared to a refillable system. Environmentally, the materials and manufacturing of single-use markers add to resource consumption.

Refil	lable	Marl	kers

Details	Refillable markers are designed with internal reservoirs that can be replenished with bottled ink, and often feature replaceable nibs. This system allows for the extended use of a single marker body, significantly reducing plastic waste. These markers are commonly found for whiteboards or specialized art/craft uses, but commercial-grade permanent refillable options exist.
General Market Price (Per Unit)	 Refillable Permanent Marker (initial purchase): \$5 - \$20 per marker (higher initial cost than disposable). Ink Refills (e.g., 25ml - 100ml bottles): \$5 - \$25 per bottle (one bottle can refill many markers). Replacement Nibs: \$5 - \$15 per pack.
Estimated Price (Monthly Cost)	Initial investment of \$50 - \$150 for a set of markers and initial ink supply. Recurring monthly cost of \$5 - \$20 for ink refills (significantly lower than disposable markers in the long run). The lifespan of the marker body can be several years.
Labor Note	Requires a small amount of labor for refilling ink and occasionally replacing nibs. This may involve training staff on proper refilling techniques to avoid mess. Storage for ink bottles and spare nibs is needed.

²⁰ John Shen Stationery. "Are permanent markers toxic?" <u>https://www.johnshenstationery.com/Are-permanent-markers-toxic.html</u>

Usage & Procedures

At SHIA, we utilize refillable markers for all labeling needs. Our procedure involves keeping a stock of ink refills and replacement nibs. When a marker begins to dry out, designated staff members are responsible for carefully refilling the marker's ink reservoir. This ensures a continuous supply of working markers while drastically minimizing our disposal of plastic marker bodies. This also fosters a culture of reuse and resource management.

Pros

Refillable markers significantly reduce plastic waste by extending the life of the marker body, directly aligning with sustainability goals. This leads to substantial long-term cost savings as the cost of ink refills is considerably lower than continually purchasing new disposable markers. They offer a consistent writing experience over a longer period, and the ability to choose specific ink types for various surfaces might be available. This approach reinforces a commitment to environmental responsibility, which can resonate with staff and customers.

Cons

The initial cost of refillable markers is higher than disposable ones. Refilling can be a messy process if not done carefully, potentially leading to ink stains if staff are not properly trained. There's a need to manage ink inventory and ensure correct ink types are available for specific markers. While improving, the availability of robust, commercial-grade refillable permanent markers specifically designed for demanding kitchen environments might be more limited compared to standard disposable options.

15. Plastic Spray Bottle

Plastic spray bottles are widely used in kitchens and in Front of House for various purposes, including dispensing cleaning solutions, misting foods, and holding oils or vinegars. In line with a commitment to reducing plastic, the primary substitute is durable glass bottles, offering a reusable and more environmentally friendly alternative. These alternatives will prevent the disposal of approximately 20-40 plastic spray bottles annually, reducing recurring plastic waste from cleaning solutions.

Cost and Usage Analysis

This analysis compares the financial, operational, and environmental implications of using conventional plastic spray bottles versus their glass counterparts in a professional kitchen setting.

Plastic Spray Bottle

Details	These bottles are typically made from various plastics like HDPE (high-density polyethylene) or PET (polyethylene terephthalate), often with a plastic trigger spray head. They are lightweight, shatterproof, and cost-effective, making them common for holding cleaning agents, water for misting, or food-grade liquids.
General Market Price	\$2 - \$10 per bottle individually; \$20 - \$60 for a case of 6-12 bottles (price varies by size, plastic type, and spray head quality).
Estimated Price (Monthly Cost)	\$30 - \$150+ (Plastic spray bottles are frequently discarded due to wear, chemical degradation, pump failure, or simply being scratched/unhygienic, leading to continuous replacement. A busy kitchen might replace several bottles monthly).
Labor Note	Convenient for quick use. Lightweight and easy to maneuver. Disposal is simple

Usage Procedures

Plastic spray bottles are routinely filled with cleaning solutions for sanitizing surfaces, water for misting vegetables or bread, or even specific oil and vinegar blends for cooking applications. Their ease of use and resistance to breaking make them practical for everyday, high-frequency tasks in a busy kitchen.

Pros

Plastic spray bottles are inexpensive to purchase initially and are lightweight and shatterproof, making them safe in a fast-paced environment where dropping might occur. They are generally resistant to many chemicals and easy to handle for prolonged periods. Their durability against impact is a key advantage.

Cons

The primary concern is their environmental impact, as they are single-use plastic items that contribute to plastic waste once the bottle or pump degrades or fails. Plastic can leach chemicals into the contents, especially if exposed to heat, certain solvents, or if the plastic is old.²¹ The spray mechanisms (pumps) are often less durable than the bottle itself, leading to premature disposal. They can also absorb odors and discolor over time.

²¹ Chuck, Elizabeth. "It doesn't take much for microplastics to leach into food, researchers warn." NBC News, 15 March 2022.

https://www.nbcnews.com/health/health-news/doesnt-take-much-microplastics-leach-food-researchers-wa rn-rcna198975

Glass Bottles	
Details	These bottles feature a durable glass body, typically amber or clear, often paired with a plastic trigger spray mechanism (as the pump component is rarely fully glass). They are designed for repeated refilling and use, prioritizing material purity and reusability over single-use convenience.
General Market Price (Per Unit)	\$5 - \$20 per bottle individually; \$30 - \$80 for a case of 6-12 bottles (higher initial cost than plastic).
Estimated Price (Monthly Cost)	Initial investment of \$50 - \$200 for a robust set of various sizes. Recurring monthly cost of \$5 - \$30 (primarily for occasional replacements due to breakage, or for replacement spray pump mechanisms if they fail. Glass bottles themselves can last many years).
Labor Note	Requires careful handling to prevent breakage. Refilling takes minimal labor. Cleaning of glass is generally straightforward, but breakage introduces safety and cleanup labor.

Usage & Procedures

At SHIA, we utilize glass bottles for all our spray applications. These bottles are meticulously cleaned and refilled with cleaning solutions, water, or other liquids as needed. Our team is trained in careful handling to prevent breakage, emphasizing the long-term reusability and purity of glass over the disposable nature of plastic. This approach ensures that contents are not exposed to potential plastic leaching and significantly reduces our waste footprint.

Pros

Glass bottles are inherently non-porous and do not leach chemicals into their contents, ensuring the purity of cleaning solutions or food-grade liquids.²² They are infinitely reusable and recyclable, making them a highly sustainable and environmentally friendly choice that drastically reduces plastic waste.²³ Glass is durable against chemical degradation (unlike some plastics) and maintains a clean, professional aesthetic.

Cons

The primary disadvantage is their fragility and risk of breaking, especially in a busy kitchen environment where drops are possible. Breakage creates a safety hazard (shards of glass) and requires additional labor for cleanup. Glass bottles are heavier than plastic, which might impact ergonomics for prolonged use. While the bottle body is glass, the spray pump

²² Carbon Bright. "Glass vs Plastic Packaging: Which is Better?" Carbon Bright, 27 February 2024. <u>https://carbonbright.co/glass-vs-plastic-packaging-which-is-better</u>

²³ Glass Packaging Institute (GPI). "Facts About Glass Recycling." Accessed May 24, 2025. https://www.gpi.org/facts-about-glass-recycling

mechanism is almost always still made of plastic, meaning a small plastic component remains in the system, and these pumps can still fail and require replacement.

16. Laminated Plastic Menus

Laminated menus are commonly used in restaurants to provide a durable and easily cleanable list of offerings for customers. At SHIA, we've transformed our menus into a bespoke, in-house creation, **utilizing recycled paper and natural elements**. This not only eliminates plastic but also elevates the guest experience with a unique, handcrafted touch that reflects our commitment to sustainability in every detail. These alternatives will prevent the disposal of approximately 50-100 plastic-laminated menus/protectors annually, cutting down on durable plastic waste from guest materials.

Cost and Usage Analysis

This analysis compares the financial, operational, and environmental aspects of using traditional laminated menus versus SHIA's innovative handmade recycled paper menus.

Details	Laminated menus consist of printed paper encased in a thin layer of plastic film (laminate). This coating protects the paper from spills, tears, and wear, making them durable and easy to wipe clean.
General Market Price	\$2 - \$8 per menu (price varies based on size, complexity of print, and thickness of laminate. Bulk ordering reduces per-unit cost).
Estimated Price (Monthly Cost)	\$10 - \$50 (Laminated menus are quite durable. Costs are primarily for initial printing and lamination, with occasional replacements for lost, heavily damaged, or outdated menus, or when menu changes are frequent. If menus change frequently, this cost can be higher).
Labor Note	Very low labor for daily use and cleaning (simply wipe down). Minimal labor for replacement.

Laminated Plastic Menus

Pros

Laminated menus are highly durable and resistant to spills, stains, and tears, ensuring a longer lifespan in a restaurant setting. Their non-porous surface makes them hygienic and very easy to clean and sanitize between uses, which is crucial for public health compliance. They present a professional and polished appearance and protect the printed content from wear and fading.

Cons

The primary drawback is their significant environmental impact. Laminated menus are a composite material (paper and plastic), making them extremely difficult, if not impossible, to recycle in most municipal recycling programs, thus contributing to landfill waste. Their plastic coating also makes them non-biodegradable. Frequent menu changes mean discarding still-functional but outdated laminated menus, leading to unnecessary waste.

Recycled Paper Menu (SHIA's Homemade Method)

Details	SHIA creates its own unique menu backs from recycled paper pulp, often infused with pressed dried flowers, herbs, or even kitchen-bound expiring mushrooms for a distinct, organic aesthetic. Each piece is individually formed and set, creating a truly unique and artisanal touch for the guest experience. This process eliminates all plastic content, replacing it with a biodegradable, renewable resource.
General Market Price (Per Unit)	 A4-sized Paper Making Screen: \$12 each (SHIA uses 3, total \$36) Sponges (4-pack): \$11.75 (initial purchase) Paper Shredder: \$65 Couching Sheets (50-pack): \$18 Flat Drying Rack: \$52 Blender (e.g., a durable consumer-grade model suitable for paper pulp): \$100 - \$150 Total estimated initial equipment investment: \$282 - \$332
Estimated Price (Monthly Cost)	The initial equipment investment as listed above. Recurring monthly material cost is minimal, primarily limited to couching sheets (e.g., if you use 10-15 sheets per month, it's roughly \$3.60-\$5.40/month for them). Equipment is expected to last for years, minimizing ongoing replacement costs.
Labor Note	This process is performed in-house. It takes approximately 8 hours to create 10 menu backs, covering shredding, blending, forming, and setting. The drying time requires no labor and typically takes 2-3 days. This intensive creation process is not required more than once per month to replenish stock and replace damaged items, meaning dedicated papermaking labor averages out to roughly 2 hours per week or less. An initial larger batch for stock might take a full day, but replenishment

is infrequent.

Usage & Procedures

At SHIA, every menu back is a testament to our commitment to sustainability and craftsmanship. Handcrafted in-house from recycled paper and infused with natural elements (including pressed flowers, herbs, and dried kitchen surplus), these items provide a unique, tactile experience for our guests. When a menu back shows wear, it's not discarded; instead, it's returned to the paper pile to be recycled and reworked into new pulp, creating a beautiful closed-loop system that minimizes waste and extends material life indefinitely. This process not only eliminates plastic but also transforms potential waste into an art form, enriching our guest's dining journey.

Pros

Completely plastic-free and biodegradable, significantly reducing landfill waste and reliance on virgin resources. Offers a unique, premium, and highly personalized guest experience that reinforces SHIA's brand identity and commitment to sustainability. The closed-loop system for damaged items minimizes waste and material consumption. Utilizes kitchen surplus and staff-contributed natural elements, enhancing resource efficiency and team engagement.

Cons

Requires a dedicated labor investment for creation. The handcrafted nature means slight variations in consistency. Initial setup costs for equipment are necessary. Natural materials are more susceptible to water damage or staining if not properly handled, requiring diligent staff awareness.

17. Plastic Trash bin

Plastic trash bins are commonly used in kitchens and dining areas for waste disposal, often favored for their affordability and lightweight nature. However, for establishments prioritizing durability, aesthetics, and environmental impact, the preferred substitute is **metal trash bins**, a switch SHIA has actively implemented. These alternatives will avoid the replacement of approximately 5-15 plastic trash bins annually, reducing large-scale plastic waste from public areas.

Cost and Usage Analysis

This analysis compares the financial, operational, and aesthetic considerations of using conventional plastic trash bins versus durable metal trash bins in a professional kitchen and restaurant environment.

Plastic Trash Bin

Details	Plastic trash bins are typically made from various types of polyethylene (e.g., HDPE, LDPE) and come in a wide range of sizes and designs. They are commonly used for general waste, recycling, and sometimes for specific food waste streams due to their lightweight nature and chemical resistance.
General Market Price (Per Bin)	\$20 - \$100+ per commercial-grade plastic trash bin (price varies significantly by size, capacity, and features like foot pedals or lids).
Estimated Price (Monthly Cost)	\$10 - \$50+ (Plastic bins, especially in a busy commercial setting, can crack, stain, absorb odors, or lose their structural integrity over time due to heavy use, impact, or exposure to cleaning chemicals. They often require replacement every 1-3 years, leading to continuous purchasing).
Labor Note	Lightweight and easy to move for cleaning or emptying. Relatively quiet during use. Cleaning involves wiping down or rinsing, but plastic can stain and retain odors, potentially requiring more effort to sanitize.

Pros

Plastic trash bins are lightweight and easy to move, which simplifies waste collection and disposal processes. They are generally more affordable as an initial purchase compared to metal alternatives. Plastic is rust-proof and less prone to denting from minor impacts, making them a practical choice for many environments. They are also quieter to use, as contents and lids don't clatter against metal.

Cons

A significant drawback is their environmental impact, as they contribute to plastic waste at the end of their lifespan and are not easily recyclable in all forms. Plastic can absorb odors and stains over time, making them less hygienic and aesthetically unappealing. They are less durable than metal bins in the long run, prone to cracking or deforming with heavy use or extreme temperatures. Their appearance can also degrade, lacking the polished look of metal.

Metal Trash Bin

Details	Metal trash bins are typically constructed from stainless steel,
	galvanized steel, or powder-coated steel. They are known for their
	robust construction, resistance to odor absorption, and often a more
	professional or upscale aesthetic, making them a preferred choice for

	high-end restaurants like SHIA.
General Market Price (Per Bin)	\$50 - \$300+ per commercial-grade metal trash bin (price varies significantly by material, size, and design, with stainless steel being on the higher end).
Estimated Price (Monthly Cost)	Initial investment of \$100 - \$800+ for a set of various sizes. Recurring monthly cost of \$0 - \$10 (Metal bins are exceptionally durable and can last for many years, even decades, with proper care. Replacement is infrequent, typically only due to severe damage or aesthetic preference).
Labor Note	Heavier than plastic, which might require more effort to move when full. Cleaning is generally straightforward, as non-porous surfaces resist odors and stains. Can be noisy when lids close or contents are dropped.

Usage & Procedures

At SHIA, we have transitioned to using metal trash bins throughout our premises. Our procedures involve careful placement, regular emptying, and thorough cleaning. The non-porous surface of the metal allows for effective sanitation, and the robust construction ensures they withstand the rigors of a commercial kitchen. While heavier, their durability and aesthetic appeal align with our operational standards and brand image.

Pros

Metal trash bins are exceptionally durable and long-lasting, resisting cracks, warping, and odor absorption, providing a highly reliable waste solution. Stainless steel options are highly hygienic and easy to clean due to their non-porous surfaces, preventing bacterial buildup and staining.²⁴ They offer a premium, sleek, and professional aesthetic that enhances the overall appearance of the kitchen and dining areas. Metal bins are also fire-resistant, a significant safety advantage in a kitchen environment.

Cons

The initial cost of metal trash bins is significantly higher than plastic alternatives. They are heavier, which can make them more cumbersome to move when full, potentially increasing strain on staff. Metal bins can be noisy when lids are opened or closed, or when items are dropped inside. While stainless steel is rust-resistant, galvanized or regular steel bins can be prone to rust if the coating is damaged or not properly maintained, especially in moist environments.

²⁴ Stirlo's Blog. "Why Stainless Steel is Crucial in the Food & Beverage Industry." 17 May 2024. https://stirlings.com.au/blog/stainless-steel-in-the-food-amp-beverage-industry

18. Server Trays

Server trays, often made of plastic, are essential tools for transporting food, drinks, and busing tables efficiently in a restaurant setting. However, at SHIA, the commitment to durability and a premium aesthetic has led to the adoption of **metal server trays** as the preferred substitute for commonly used plastic ones. These alternatives will avoid the disposal of approximately 15-60 plastic server trays annually, opting for more durable, long-lasting alternatives that maintain aesthetic appeal.

Cost and Usage Analysis

This analysis compares the financial, operational, and aesthetic considerations of using conventional plastic server trays versus durable metal server trays in a professional restaurant environment.

Server Trays

Details	Plastic server trays are typically constructed from materials like fiberglass, polypropylene, or ABS plastic. They are designed to be lightweight, often featuring non-skid surfaces, and are widely used for carrying multiple plates, glassware, or for bussing soiled dishes due to their low cost and ease of handling.
General Market Price (Per Tray)	\$5 - \$20 per commercial-grade plastic server tray (price varies by size, material, and features like non-skid surfaces). Often purchased in bulk.
Estimated Price (Monthly Cost)	\$7 - \$100+ (Plastic trays have a relatively short lifespan in a busy commercial environment. They are prone to scratching, warping, cracking, or losing their non-skid properties over time, requiring frequent replacement every 6-8 months. A busy restaurant might replace several trays monthly).
Labor Note	Lightweight nature reduces strain on servers, making them easy to carry. Relatively quiet during use. Cleaning involves wiping down or washing, and they are often dishwasher-safe.

Pros

Plastic server trays are initially inexpensive, making them a cost-effective choice for outfitting a large service team. They are lightweight, reducing physical strain on servers, which can be an ergonomic benefit during long shifts. Their non-skid surfaces (if present) help prevent spills and breakage by keeping items secure. They are also quieter than metal trays when handling items or stacking.

Cons

Plastic trays are less durable than metal, prone to scratching, warping, or cracking with heavy use, leading to frequent replacement and contributing to plastic waste. They can stain and absorb odors over time, impacting hygiene and appearance. Their aesthetic appeal is often less refined than metal, potentially detracting from a premium dining experience. Environmental concerns also arise from the disposal of non-recyclable plastic.

Metal Server Tray

Details	Metal server trays are commonly made from stainless steel or aluminum. They are known for their exceptional durability, sleek appearance, and ability to handle heavy loads. They often lack a dedicated non-skid surface, relying on server skill for stability.
General Market Price (Per Tray)	\$25 - \$100+ per commercial-grade metal server tray (price varies by material, size, and finish; typically a higher initial investment than plastic).
Estimated Price (Monthly Cost)	Initial investment of \$200 - \$800+ for a full set of various sizes. Recurring monthly cost of \$0 - \$10 (Metal trays are extremely durable and can last for many years, even decades, with proper care. Replacement is infrequent, usually only due to severe denting, corrosion, or loss).
Labor Note	Heavier than plastic trays, which might require more strength from servers, potentially increasing strain. Can be noisy when stacking or handling items. Cleaning is generally straightforward, as non-porous surfaces resist odors and stains.

Usage & Procedures

At SHIA, we utilize metal server trays for all front-of-house service. Servers are trained in precise handling techniques to manage the tray's weight and ensure stability without relying on non-skid surfaces. These trays are rigorously cleaned and polished after each use to maintain their pristine appearance, reflecting the high standards of the restaurant. Their robust nature allows them to transport heavier loads with confidence and contributes to an elevated presentation of dishes.

Pros

Metal server trays are exceptionally durable and long-lasting, resisting scratching, warping, and breaking, leading to very infrequent replacement. Their non-porous surface (especially stainless steel) is highly hygienic and easy to clean, resisting odors and stains. They offer a premium, sophisticated aesthetic that enhances the dining experience and aligns with a

high-end restaurant's brand image. Metal trays generally have a higher weight capacity than plastic, allowing for more items to be carried safely.

Cons

The initial cost of metal server trays is significantly higher than plastic alternatives, requiring a larger upfront investment. They are heavier than plastic, which can increase the physical demands on servers, especially during busy shifts. Metal trays can be noisy when stacking, setting down, or when items clink against them. They also have no inherent non-skid properties, requiring greater skill and balance from servers to prevent items from sliding.

19. Plastic Straws

Plastic straws are ubiquitous for drinking beverages, particularly cold drinks, offering convenience for customers. However, due to significant environmental concerns, restaurants are increasingly adopting substitutes such as **biodegradable straws** or implementing a **"no straw"** policy, encouraging direct drinking or offering straws only upon request. These alternatives will eliminate the use and disposal of approximately 10,000-18,000 single-use plastic straws annually, which are a major contributor to environmental pollution.

Cost and Usage Analysis

This analysis examines the financial, operational, and environmental implications of using conventional plastic straws, their biodegradable alternatives, and the complete elimination of straws in a restaurant setting.

Details	Plastic straws are typically made from polypropylene (PP) or polystyrene (PS). They are lightweight, flexible, and inexpensive, making them a standard offering for beverages in many food service establishments.
General Market Price	(Per Straw/Case): \$0.005 - \$0.01 per straw; \$10 - \$30 for a case of 2,000 - 10,000 straws.
Estimated Price (Monthly Cost)	\$50 - \$300+ (Highly dependent on beverage volume. As a single-use item, a busy restaurant can go through thousands of straws weekly, leading to a significant recurring expense).
Labor Note	Low labor for dispensing (e.g., self-serve dispensers) and disposal. Easy to store.

Plastic Straw

Pros

Plastic straws are extremely low in cost on a per-unit basis, making them a very affordable option for high-volume use. They are convenient for both customers and staff, requiring no special handling or cleaning. They offer a consistent and familiar drinking experience for guests.

Cons

The most significant drawback is their severe environmental impact. Plastic straws are a major contributor to plastic pollution in oceans and landfills, breaking down into harmful microplastics that persist for hundreds of years.²⁵ They are rarely recycled due to their small size and contamination. Their single-use nature contributes to significant waste generation.

Biodegradable Straws

Details	"Biodegradable" straws are made from various materials like paper, PLA (polylactic acid derived from corn starch), pasta, or hay. They are marketed as more environmentally friendly alternatives to plastic, designed to break down more quickly in specific environments.
General Market Price	\$0.02 - \$0.08 per straw; \$50 - \$200+ for a case of 2,000 - 10,000 straws (significantly higher than plastic).
Estimated Price (Monthly Cost)	\$200 - \$800+ (Given the higher unit cost and continued single-use nature, monthly expenses can be substantial, often 2-5 times that of plastic straws).
Labor Note	Similar to plastic for dispensing. May require separate waste streams if truly compostable (e.g., for PLA straws that require industrial composting).

Usage & Procedures

Biodegradable straws are offered as a direct alternative to plastic straws, provided with beverages. The intention is for them to be disposed of in a way that allows them to biodegrade, though the specific disposal requirements (e.g., industrial composting vs. backyard composting) vary widely by material and local infrastructure.

Pros

Biodegradable straws offer a reduced environmental footprint compared to plastic, assuming they break down as intended. They provide a physical straw experience for customers who

²⁵ Beyond Plastics. "Plastic Straws Fact Sheet." Accessed May 24, 2025. <u>https://www.beyondplastics.org/fact-sheets/plastic-straws</u>

prefer or require one. Some materials like paper or hay can offer a natural feel.

Cons

Despite the "biodegradable" label, many of these straws (especially PLA) require industrial composting facilities to fully break down, which are not widely available, often leading them to end up in landfills where they decompose very slowly.²⁶ They are significantly more expensive than plastic straws. Paper straws can become soggy or impart a taste to drinks, impacting the customer experience. Other types like pasta or hay may have different texture or durability issues.²⁷

No Straw as an Option (Operational Policy)

Details	This policy involves explicitly not providing straws as a default. Straws are only offered upon specific request from the customer, or not at all. This approach encourages customers to drink directly from glasses and significantly reduces straw consumption. Restaurants may keep a limited stock of reusable straws (e.g., metal, bamboo) for those with accessibility needs.
General Market Price	\$0 (or minimal cost for a very small stock of reusable/accessible straws).
Estimated Price (Monthly Cost)	\$0 (or very low for limited stock). This represents direct cost savings from not purchasing disposable straws.
Labor Note	Eliminates labor for dispensing and managing disposable straw inventory. May involve brief interactions with customers explaining the policy or offering alternatives. Requires staff training on policy and how to handle requests, especially for accessibility.

Usage & Procedures

At SHIA, we prioritize sustainability by implementing a "no straw" policy. Customers are provided with their beverages and encouraged to drink directly. Staff are trained to politely explain the policy and to offer alternatives, such as a reusable metal straw kept for guests with specific accessibility needs, ensuring inclusivity without compromising our environmental commitment. This transparent approach often involves communication on menus or table

²⁶ Simon, Erin. "Is 'Biodegradable' and 'Compostable' Plastic Good for the Environment? Not Necessarily." World Wildlife Fund (WWF) - Sustainability Works Blog, 26 July 2021. <u>https://www.worldwildlife.org/blogs/sustainability-works/posts/is-biodegradable-and-compostable-plastic-g</u> <u>ood-for-the-environment-not-necessarily</u>

²⁷ Moshood, T. D., Nawanir, G., Mahmud, F., Mohamad, F., Ahmad, M. H., & AbdulGhani, A. "Sustainability of biodegradable plastics: New problem or solution to solve the global plastic pollution?" Current Research in Green and Sustainable Chemistry, 5, 100273. 2022. <u>https://doi.org/10.1016/j.crgsc.2022.100273</u>

signage.

Pros

Implementing a "no straw" policy offers the maximum environmental benefit by completely eliminating disposable straw waste from operations. This leads to significant cost savings by removing the recurring expense of purchasing thousands of straws. It makes a strong, clear statement about the restaurant's commitment to sustainability, which can enhance brand image and appeal to environmentally conscious customers. It also simplifies inventory management.

Cons

The initial cost of metal server trays is significantly higher than plastic alternatives, requiring a larger upfront investment. They are heavier than plastic, which can increase the physical demands on servers, especially during busy shifts. Metal trays can be noisy when stacking, setting down, or when items clink against them. They also have no inherent non-skid properties, requiring greater skill and balance from servers to prevent items from sliding.

20. Plastic Stapler

Plastic staplers are a common office supply used for fastening paper documents quickly and conveniently. However, for organizations prioritizing long-term efficiency, durability, and reduced environmental impact, metal staplers or metal paper clips serve as a sustainable substitutes. These alternatives will prevent the disposal of approximately 5-10 plastic staplers annually, reducing small plastic waste from office supplies.

Cost and Usage Analysis

This analysis compares the financial, operational, and environmental implications of using conventional plastic staplers versus robust metal staplers in a professional setting.

Plastic Stapler	
Details	Plastic staplers typically consist of an internal metal stapling mechanism encased in a lightweight plastic body, usually made from ABS or polystyrene. They are widely available, come in various colors, and are designed for everyday paper fastening tasks in offices, schools, and commercial settings.
General Market Price	\$5 - \$20 per stapler individually; \$30 - \$80 for a case of 6-12 staplers (price varies by brand and features).

Estimated Price (Monthly Cost)	\$10 - \$40+ (Plastic staplers are prone to wear, cracking, or breaking, especially with heavy or frequent use. They often require replacement every 6-18 months. While individual units are cheap, the continuous replacement cycles add up).
Labor Note	Lightweight and easy to use. Simple to load staples. Prone to jamming or structural failure if over-stressed. Disposal is straightforward.

Pros

Plastic staplers are initially inexpensive, making them a low-cost entry point for office supplies. They are lightweight, which can be ergonomically beneficial for some users during prolonged tasks. Their variety of colors and designs allows for customization or color-coding in different departments.

Cons

The primary drawback is their limited durability. Plastic bodies are prone to cracking, breaking, or becoming flimsy with frequent use or accidental drops, leading to a shorter lifespan. This contributes to plastic waste and increased disposal frequency. They are also often more prone to jamming due to less robust internal mechanisms, leading to frustration and lost productivity.

Metal Stapler or Metal Paper Clip

Details	This substitute category includes both metal staplers (constructed predominantly from steel, die-cast metal, or heavy-duty aluminum for longevity and consistent performance) and metal paper clips (small, reusable pieces of bent wire, typically steel, designed for temporary or reusable fastening without staples). The choice between them offers flexibility based on the permanence needed.
General Market Price	 Metal Stapler (initial purchase): \$20 - \$80 per commercial-grade metal stapler. Metal Paper Clips: \$5 - \$20 for a box of 100-1000 clips (cost varies by size and quantity).
Estimated Price (Monthly Cost)	Initial investment of \$50 - \$200 for a full set of staplers and a bulk supply of paper clips. Recurring monthly cost of \$0 - \$10 (Metal staplers can last for many years with minimal replacement. Metal paper clips are highly reusable; ongoing costs are only for replacement of lost clips or very occasional staple purchases).
Labor Note	Metal Stapler: Heavier, which can offer a more stable feel but requires more effort to lift. Less prone to jamming.

Usage & Procedures

At SHIA, we prioritize efficient and sustainable document fastening by utilizing either a metal stapler for permanent binding or metal paper clips for temporary and reusable fastening. The metal stapler is used for critical documents that require secure, long-term attachment. For daily administrative tasks, loose papers, or documents that may need to be separated later, we employ reusable metal paper clips. This approach ensures that materials are fastened appropriately while significantly reducing waste from disposable plastic staplers and single-use staples.

Pros

This dual approach offers exceptional durability and longevity for fastening tools (metal staplers can last for decades) and complete reusability for temporary fastening (metal paper clips), leading to a drastic reduction in waste (less plastic, less staple wire waste). Metal staplers provide superior reliability and consistent performance, minimizing frustrating paper jams. Metal paper clips require no staples, eliminating staple waste and offering extreme flexibility. Both options present a more professional and premium aesthetic compared to plastic alternatives. This strategy also leads to significant long-term cost savings by minimizing the need for frequent replacements.

Cons

The initial cost for quality metal staplers is higher than plastic models. Metal staplers are heavier, which some users might find less comfortable for very prolonged light-duty tasks. Metal paper clips, while reusable, offer less permanent fastening than staples and can occasionally slip off. For very high-volume, permanent fastening, using paper clips might be slower than a stapler.

21. FOH Organizers

Front-of-House (FOH) organizers, such as cash drawers, condiment caddies, and desk tidies, are crucial for maintaining order and efficiency in customer-facing areas. While often made from plastic, SHIA opts for more durable and aesthetically pleasing **wood or metal organizers** to enhance both functionality and the guest experience. These alternatives will avoid the disposal of approximately 20-40 plastic FOH organizers annually, choosing highly durable and long-lasting alternatives that maintain aesthetic integrity.



Cost and Usage Analysis

This analysis compares the financial, operational, and aesthetic implications of using conventional plastic FOH organizers versus robust wood or metal alternatives in a professional restaurant setting.

Plastic FOH Organizers

Details	Plastic FOH organizers are typically molded from durable plastics like ABS, PVC, or acrylic. They are lightweight, come in various designs (e.g., multi-tiered, compartmentalized), and are commonly used for cash drawer inserts, holding napkins, condiments, pens, or small office supplies at reception or serving stations.
General Market Price	\$10 - \$50 per commercial plastic organizer (price varies significantly by size, complexity, and specific function, e.g., cash drawer insert vs. condiment caddy).
Estimated Price (Monthly Cost)	\$20 - \$100+ (Plastic organizers are prone to scratching, staining, cracking, or breaking in high-traffic FOH environments. They often require replacement every 6-24 months due to wear, aesthetic degradation, or damage, leading to continuous purchasing).
Labor Note	Lightweight and easy to move for cleaning or rearrangement. Simple to wipe down, but can accumulate grime in crevices or show permanent stains.

Pros

Plastic organizers are initially inexpensive, offering a low upfront cost for equipping front-of-house areas. They are lightweight, making them easy to handle, move, and rearrange as needed. Plastic is generally water-resistant and can be cleaned with standard cleaning solutions. Their widespread availability means a broad range of styles and configurations to fit specific needs.

Cons

Plastic organizers are less durable than wood or metal, prone to scratching, staining, cracking, or discoloration with regular use and cleaning, leading to frequent replacement and contributing to plastic waste. They can also absorb odors over time, especially in a food service environment.

Wood or Metal Organizers

Details	This category includes organizers crafted from solid wood (e.g.,
---------	--

	bamboo, acacia, walnut) or durable metals (e.g., stainless steel, powder-coated steel). These materials offer superior durability, stability, and a more refined aesthetic, aligning with an upscale or sustainable brand image. They function identically in organizing various FOH items.
General Market Price	\$30 - \$150+ per commercial wood or metal organizer (significantly higher initial cost than plastic, with stainless steel generally being the most expensive).
Estimated Price (Monthly Cost)	Initial investment of \$200 - \$1,000+ for a comprehensive set. Recurring monthly cost of \$0 - \$15 (These organizers are built to last for many years, even decades, with proper care. Replacement is very infrequent, typically only due to severe damage or a major aesthetic redesign).
Labor Note	Heavier and more stable, reducing accidental movement. Wood requires specific care (e.g., avoiding prolonged moisture, occasional oiling), while metal is generally easy to wipe clean. Can be noisier (metal) or require more careful handling (wood) than plastic.

Usage & Procedures

At SHIA, our FOH areas are equipped with carefully selected wood or metal organizers. These are used for our cash drawer systems, for elegantly presenting condiments, and for organizing essential service tools. The operational procedures emphasize careful handling and consistent cleaning tailored to the material: metal organizers are regularly wiped down with appropriate sanitizers, while wood organizers are gently cleaned and occasionally conditioned to maintain their luster and integrity. This approach ensures longevity and consistent aesthetic appeal.

Pros

Both wood and metal organizers offer significantly superior durability and longevity compared to plastic, resisting wear, cracking, and staining, which translates to far less frequent replacement and lower long-term costs. They provide a premium, sophisticated aesthetic that enhances the restaurant's ambiance and guest perception. Metal (especially stainless steel) is highly hygienic and easy to clean due to its non-porous surface. Wood, when responsibly sourced, is a renewable and biodegradable material, aligning with sustainability goals.

Cons

The initial cost of wood or metal organizers is significantly higher than plastic, requiring a larger upfront investment. They are typically heavier, which can make them less convenient to move frequently. Wooden organizers require more careful maintenance (e.g., hand-washing, avoiding excessive moisture, periodic oiling) to prevent warping, cracking, or bacterial buildup. Metal organizers can be noisier when items are placed in them or when stacked.

22. Silverware organizer

Silverware organizers are essential kitchen tools used to keep cutlery clean, tidy, and readily accessible within drawers or on countertops. While plastic organizers are a common choice, SHIA has strategically opted for **wooden drawers and wooden organizers** to ensure silverware remains clean, free from plastic contact, and to actively reduce microplastic and plastic exposure in our culinary operations. These alternatives will prevent the disposal of approximately 5-15 plastic silverware organizers annually, eliminating potential microplastic transfer to clean cutlery.

Cost and Usage Analysis

This analysis compares the financial, operational, and material considerations of using conventional plastic silverware organizers versus dedicated wooden drawers and organizers, emphasizing the goal of minimizing plastic exposure and promoting cleanliness.

Details	These organizers are typically molded from various types of plastic, such as polypropylene or polystyrene, into compartmentalized trays designed to fit inside kitchen drawers or sit on countertops. They are lightweight, inexpensive, and widely available for organizing forks, knives, spoons, and other small utensils.
General Market Price	\$5 - \$25 per plastic silverware organizer (price varies by size, number of compartments, and brand).
Estimated Price (Monthly Cost)	\$10 - \$40+ (Plastic organizers, especially in a commercial setting, can scratch easily, stain, or crack with repeated use and heavy cutlery. They often require replacement every 6-18 months due to aesthetic degradation or damage, leading to continuous purchasing).
Labor Note	Lightweight and easy to place or remove for cleaning. Simple to wipe down, but deep scratches can accumulate grime.

Plastic Silverware Organizer

Pros

Plastic silverware organizers are very inexpensive as an initial purchase, making them accessible for any budget. They are lightweight and easily moved for cleaning or rearrangement. They are generally water-resistant and can be quickly wiped down or machine washed, offering convenience in a busy environment.

Cons

A significant concern is the potential for plastic degradation and microplastic shedding over

time, particularly from repeated contact with metal cutlery scratching the surface. This could potentially transfer microplastic particles to the "clean" silverware.²⁸ Plastic organizers are prone to scratching, staining, and cracking, which degrades their appearance and hygiene.

Wooden Drawers and Wooden Organizers

Details	This substitute encompasses integrated wooden drawer inserts or standalone wooden organizers (often bamboo or hardwood) designed to fit within existing drawers. They offer a natural, sturdy, and elegant solution for cutlery organization, entirely eliminating plastic contact with silverware during storage.
General Market Price	\$30 - \$150+ per wooden cutlery organizer or drawer insert (higher initial cost than plastic, with custom-fit inserts being more expensive).
Estimated Price (Monthly Cost)	Initial investment of \$200 - \$800+ for a comprehensive set or custom inserts. Recurring monthly cost of \$0 - \$10 (Wooden organizers are exceptionally durable and can last for many years, even decades, with proper care. Replacement is very infrequent, usually only due to severe damage or a change in kitchen layout).
Labor Note	Requires careful cleaning and maintenance. Wood is not dishwasher safe and must be hand-washed and thoroughly dried immediately to prevent warping or mold. Periodic oiling may be necessary to maintain the wood's integrity.

Usage & Procedures

At SHIA, our silverware is meticulously organized within dedicated wooden drawers and wooden organizers. After washing and drying, each piece of cutlery is carefully placed into its designated wooden compartment, ensuring no contact with plastic surfaces during storage. Our operational procedures emphasize hand-washing these wooden organizers as needed and thorough air-drying to maintain their pristine condition and prevent any moisture-related issues. This meticulous care extends the lifespan of the organizers and reinforces our commitment to a plastic-free environment.

Pros

Wooden organizers offer a completely plastic-free storage solution for silverware, directly addressing concerns about microplastic transfer and chemical leaching. They possess superior durability and longevity compared to plastic, resisting scratches and cracks, resulting in minimal replacement needs and lower long-term costs. Their natural aesthetic adds a

https://www.nbcnews.com/health/health-news/doesnt-take-much-microplastics-leach-food-researchers-wa rn-rcna198975

²⁸ Chuck, Elizabeth. "It doesn't take much for microplastics to leach into food, researchers warn." NBC News, 15 March 2022.

warm, premium, and sophisticated touch to the kitchen and dining areas. Responsibly sourced wood is a renewable and biodegradable material, aligning strongly with sustainability goals.

Cons

The initial cost of wooden organizers is significantly higher than plastic alternatives, requiring a larger upfront investment. Wooden organizers require more careful cleaning and maintenance; they are not dishwasher safe and must be thoroughly dried to prevent warping, cracking, or the growth of mold or bacteria. They can also be heavier than plastic, making them less convenient for frequent removal.

23. Bathroom Soap dispenser

Bathroom soap dispensers are fundamental for maintaining hygiene in restrooms and handwashing stations. While commonly made from plastic, SHIA opts for more durable, hygienic, and aesthetically superior **metal or ceramic soap dispensers** to enhance the overall cleanliness, sustainability, and guest experience. These alternatives will eliminate the disposal of approximately 20-40 plastic soap dispensers annually, significantly reducing plastic waste.

Cost and Usage Analysis

This analysis compares the financial, operational, and aesthetic implications of using conventional plastic soap dispensers versus robust metal or ceramic alternatives in a professional restaurant environment.

Details	Plastic soap dispensers are typically made from materials such as PET, HDPE, or ABS. They come in various forms, including refillable pump bottles, squeeze bottles, or wall-mounted units. They are widely used for dispensing liquid hand soap in public restrooms, kitchens, and other commercial settings due to their low cost and lightweight nature.
General Market Price	\$5 - \$25 per dispenser individually; \$30 - \$80 for a case of 6-12 dispensers (price varies by size, mechanism type, and whether pre-filled).
Estimated Price (Monthly Cost)	\$15 - \$80+ (Plastic dispensers, particularly their pump mechanisms, are prone to breaking, clogging, or becoming discolored and unsightly with frequent use, refilling, and exposure to cleaning agents. They often require replacement every 3-12 months, leading to a continuous and accumulated cost).

Plastic Bathroom Soap Dispenser

Labor Note	Easy to refill and clean. Lightweight and simple to install if wall-mounted. However, frequent replacement due to breakage adds to waste management labor.
	waste management labor.

Pros

Plastic soap dispensers are very inexpensive as an initial purchase, making them a cost-effective option for equipping numerous sinks. They are lightweight and shatterproof, which reduces the risk of injury or damage if dropped. They offer a wide variety of styles and capacities, and many pre-filled options are readily available for immediate use.

Cons

The primary drawback is their limited durability, particularly the pump mechanisms, which are often the first component to fail. Plastic bodies can scratch, stain, and discolor over time, especially with exposure to certain chemicals or strong sunlight, degrading their appearance. They contribute to plastic waste at the end of their short lifespan, and their aesthetic is generally considered less premium than other materials.²⁹

Metal or Ceramic Soap Dispenser

Details	This category includes dispensers crafted from robust materials like stainless steel, brass, or durable ceramics (e.g., porcelain, stoneware). They typically feature sturdy pump mechanisms (often metal) and are designed for longevity, high traffic, and a refined aesthetic. They can be freestanding or wall-mounted.
General Market Price	\$30 - \$150+ per commercial-grade metal or ceramic dispenser (significantly higher initial cost than plastic, with stainless steel and high-quality ceramic at the higher end).
Estimated Price (Monthly Cost)	Initial investment of \$100 - \$500+ for a set of dispensers. Recurring monthly cost of \$0 - \$10 (Metal and ceramic dispensers are exceptionally durable and can last for many years, even decades, with proper care. Replacement is very infrequent, usually only due to severe accidental damage or a complete redesign).
Labor Note	Easy to refill. Cleaning metal is straightforward. Ceramic requires careful handling to avoid chipping. Maintenance is minimal beyond standard cleaning.

²⁹ University of Texas Marine Science Institute. "Weathering Scratches the Surface of Plastic." 23 February 2022. https://marinescience.utexas.edu/news/research/weathering-scratches-surface-plastic

Usage & Procedures

At SHIA, we utilize elegant and durable metal or ceramic soap dispensers in all our restrooms and handwashing areas. These dispensers are regularly refilled with high-quality liquid soap and meticulously cleaned to maintain their pristine appearance. Staff are trained to handle ceramic dispensers with care to prevent chipping and to polish metal dispensers to avoid smudges, ensuring they consistently contribute to a clean, sophisticated environment that reflects our commitment to quality and sustainability.

Pros

Metal and ceramic dispensers offer superior durability and longevity compared to plastic, resisting wear, scratches, and discoloration, which leads to far less frequent replacement and significant long-term cost savings. They provide a premium, sophisticated aesthetic that elevates the restroom experience and aligns with a high-end restaurant's brand image. Both materials are non-porous and highly hygienic, resisting bacterial growth and easy to clean without staining. Choosing these materials also aligns with sustainability goals by reducing plastic waste.

Cons

The initial cost of metal or ceramic dispensers is significantly higher than plastic, requiring a larger upfront investment. Ceramic dispensers are fragile and prone to breaking or chipping if dropped, creating a safety hazard and requiring replacement. Metal dispensers can show fingerprints and water spots more easily, requiring more frequent polishing to maintain their pristine look. They are also heavier than plastic, which might be a minor consideration for installation of wall-mounted units.

24. Check Presenter

Check presenters are used to discreetly and professionally deliver the bill to guests at the end of their meal. While restaurants commonly use plastic versions, SHIA instead opts for more elegant and sustainable alternatives: either **a wooden clip or presenting the check on a small ceramic plate with a stone**. This choice not only elevates the guest experience but also aligns with our commitment to reducing plastic use. These alternatives will eliminate the disposal of approximately 20- 50 plastic check presenters annually, replacing them with long-lasting, aesthetically superior alternatives.

Cost and Usage Analysis

This analysis compares the financial, operational, and aesthetic aspects of using conventional plastic check presenters versus SHIA's unique, more sustainable, and premium alternatives.

Plastic Check Presenter

Details	Plastic check presenters are typically made from vinyl or rigid plastic, often designed as a bi-fold wallet or a simple clipfolio. Their main purpose is to hold the guest's bill and credit card securely for payment processing.
General Market Price	\$3 - \$15 per plastic check presenter (price varies by quality, design, and features like built-in pockets). Often purchased in bulk. Some companies will offer free check presenters to the restaurant in exchange for advertising.
Estimated Price (Monthly Cost)	\$12 - \$60+ (Plastic check presenters are in constant circulation and prone to wear, scratching, cracking, or losing their crisp appearance due to frequent handling, cleaning, and exposure to spills. They often require replacement every 4-6 months, leading to continuous purchasing).
Labor Note	Lightweight and easy for servers to carry. Simple to wipe clean, though scratches and worn areas can accumulate dirt over time.

Pros

Plastic check presenters are very inexpensive as an initial purchase, making them a cost-effective solution for large-scale operations. They are lightweight and thin, making them easy for servers to carry multiple at once. They are generally resistant to minor spills, providing a basic level of protection for the bill.

Cons

Plastic check presenters typically have a less sophisticated or "cheap" aesthetic, which can detract from the overall dining experience in a premium restaurant. They are prone to scratching, scuffing, and cracking with regular use, quickly looking worn and unprofessional. Their frequent replacement contributes to plastic waste, which is a significant environmental concern.

Wooden Clip or Small Ceramic Plate and Stone

Details	This innovative substitute approach at SHIA uses either a sleek wooden clip (e.g., a slim wooden clipboard or a simple, elegant wooden clip) to hold the bill, or a combination of a small, polished ceramic plate (or small dish) with a decorative stone placed on top to secure the bill. Both options aim for a premium, sustainable, and plastic-free presentation.
---------	---

General Market Price	 Wooden Clip: \$10 - \$30 per wooden clip/board. Small Ceramic Plate: \$10 - \$40 per plate. Decorative Stone: \$2 - \$10 per stone.
Estimated Price (Monthly Cost)	Initial investment of \$100 - \$500+ for a full set of these alternatives. Recurring monthly cost of \$0 - \$15 (Wooden clips are durable but may require occasional replacement; ceramic plates and stones are extremely long-lasting with proper care, only replaced if broken. This represents significant long-term savings compared to plastic).
Labor Note	 Wooden Clip: Easy to use. Requires careful cleaning and drying to maintain wood integrity. Ceramic Plate/Stone: Requires careful handling to prevent breakage. Cleaning is straightforward (dishwasher safe for most ceramic). The presentation method might require slight server training for consistency and elegance.

Usage & Procedures

At SHIA, the check presentation is an extension of the guest's dining experience. For some guests, the bill is presented elegantly held by a wooden clip, offering a natural and tactile feel. For others, the bill is placed on a small, artfully chosen ceramic plate, gently weighted by a smooth, decorative stone. Our staff are trained to handle these items with care and present them with a flourish that matches our refined aesthetic. After each use, wooden clips are carefully wiped clean, and ceramic plates are thoroughly washed and dried. This method ensures that the final interaction is as premium and sustainable as the meal itself.

Pros

This dual approach offers significantly enhanced aesthetic appeal, creating a premium and memorable final impression for guests that plastic simply cannot match. It ensures a completely plastic-free interaction during payment, aligning strongly with our commitment to reducing plastic exposure. Both wood and ceramic/stone are highly durable materials, leading to much longer lifespans and lower long-term replacement costs compared to plastic. Wood is a renewable resource, and ceramic/stone are naturally sourced and highly reusable, reinforcing sustainability goals.

Cons

The initial investment for quality wooden clips or ceramic plates/stones is significantly higher than for plastic presenters. Ceramic plates and stones are fragile and prone to breaking or chipping if dropped, creating a safety hazard and requiring replacement. Wooden clips, while durable, may still show wear over time and require careful cleaning (not dishwasher safe) to maintain their integrity. The unique presentation style may require additional training for serving staff to ensure consistent and elegant execution.

25. Napkins

Napkins are fundamental for guest comfort and cleanliness during dining. While many commercially available disposable napkins often contain synthetic fibers or plastic coatings, or contribute to plastic waste through packaging and disposal, SHIA distinguishes itself by exclusively using **100% cotton cloth napkins** for customers. This commitment ensures a completely plastic-free experience, a luxurious feel, and aligns with our comprehensive sustainability goals. These alternatives will prevent the disposal of approximately 10,000-12,000 synthetic-blend disposable napkins annually, eliminating plastic fibers and contributing to landfill waste reduction.

Cost and Usage Analysis

This analysis examines the financial, operational, and environmental implications of using conventional "cheap napkins" containing synthetic/plastic blends versus luxurious and sustainable 100% cotton cloth napkins in a restaurant setting.

Details	These napkins are often marketed as "linen-feel" or "soft-touch" disposables, typically made from non-woven materials that are blends of wood pulp and synthetic fibers (e.g., polyester, rayon, polypropylene). The plastic content is added to enhance strength, absorbency, and a cloth-like texture. They are designed for single-use and immediate disposal.
General Market Price	\$0.02 - \$0.08 per napkin; \$100 - \$400 for a case of 2,000 - 5,000 napkins (price varies by size, blend, and brand).
Estimated Price (Monthly Cost)	\$300 - \$1,200+ (Highly dependent on guest volume. As a single-use item, a busy restaurant continuously purchases and disposes of thousands of these napkins monthly, leading to a substantial recurring expense).
Labor Note	Very low labor for dispensing (e.g., placing on tables) and disposal. No laundering required.

Synthetic Blended Napkins

Pros

Synthetic-blend napkins have a relatively low initial purchase cost per unit compared to cloth, making them economically attractive for many establishments. They offer maximum convenience as they require no laundering, folding, or complex storage. They provide a more substantial feel than pure paper, often perceived as a slight upgrade without the operational demands of cloth.
Cons

A significant drawback is their environmental impact due to plastic content. The synthetic fibers (plastics) shed microplastics during use, disposal, and decomposition, which can pollute waterways and soil. As composite materials, they are non-biodegradable and cannot be recycled, contributing directly to persistent landfill waste. Their continued purchase leads to ongoing resource depletion and waste generation.

100% Cotton Cloth Napkins

Details	These are reusable napkins made entirely from natural cotton fibers. They are designed for exceptional durability, absorbency, and a genuinely soft, luxurious tactile feel. They are intended to be laundered and reused countless times, providing a premium and environmentally responsible alternative.
General Market Price	\$2 - \$8 per 100% cotton cloth napkin (initial purchase, varies by quality, size, and weave).
Estimated Price (Monthly Cost)	Initial investment of \$500 - \$2,000+ for a sufficient inventory (to allow for laundering cycles). Recurring monthly cost of \$200 - \$1,000+ (Primarily for laundry services – either in-house labor, water, energy, detergents, or outsourced commercial laundry fees. Also includes occasional replacement for heavily stained, torn, or worn-out napkins, typically every 1-3 years).
Labor Note	Significant labor for collecting, sorting, washing, drying, ironing (if desired for crispness), folding, and storing. This is a substantial ongoing operational task, whether managed in-house or outsourced. Requires careful inventory management to ensure sufficient clean stock.

Usage & Procedures

At SHIA, each guest is provided with a fresh, meticulously folded 100% cotton cloth napkin, enhancing the elevated dining experience. After each meal, soiled napkins are collected, separated from other waste, and then sent for professional laundering (or processed in-house if facilities allow). Once cleaned and pressed, they are carefully folded and stored, ready for reuse. This cycle emphasizes a commitment to a plastic-free environment and a premium touch.

Pros

100% cotton cloth napkins are completely plastic-free, eliminating concerns about synthetic fibers and microplastic shedding during use, washing, or disposal. They are highly sustainable due to their reusability, significantly reducing landfill waste and reliance on virgin resources.

They offer a genuinely luxurious, soft, and premium feel that significantly enhances the guest dining experience and reflects high-end service. Cloth napkins are highly absorbent and durable, designed for countless cycles of use.

Cons

The initial purchase cost for a full inventory of cotton napkins is significantly higher than for disposable alternatives. The most substantial ongoing cost and labor come from laundering. This involves considerable water and energy consumption, as well as the environmental impact of detergents, unless eco-friendly laundry practices are strictly adhered to. Cloth napkins are prone to permanent staining, especially from certain foods or wines, requiring careful pre-treatment or leading to premature replacement. They also require significant storage space for both clean and soiled inventory.

26. Hangers

Hangers are essential for guest coat checks and maintaining an organized environment. While plastic hangers are widely prevalent due to their low cost, SHIA has strategically adopted **metal hangers** (often with integrated numbering for efficient tracking) or **traditional high-quality metal** and **wooden hangers** for all guest and internal use. This shift not only enhances durability and organization but also aligns with our commitment to eliminating plastic. These alternatives will divert approximately 50-80 brittle plastic hangers from landfills annually, preventing substantial plastic waste from guest coat checks.

Cost and Usage Analysis

This analysis compares the financial, operational, and environmental implications of using conventional plastic hangers versus durable and sustainable metal or wooden hangers in a restaurant setting, with a focus on their specific advantages like numbering for tracking.

Details	Plastic hangers are typically molded from polystyrene (PS) or polypropylene (PP). They are lightweight, come in various standard shapes, and are mass-produced for general garment hanging in retail, dry cleaning, and hospitality settings.
General Market Price	\$0.20 - \$1.00 per hanger; \$20 - \$100 for a case of 100-500 hangers.
Estimated Price (Monthly Cost)	\$50 - \$200+ (Plastic hangers are brittle and prone to breaking at stress points, particularly the hook or shoulders, especially with heavy coats

Plastic Hangers

	or frequent handling. They often require frequent replacement, leading to a continuous purchase cycle and increased waste).
Labor Note	Lightweight and easy to handle for coat check staff. Storage is compact. However, frequent breakage leads to replacement labor and disposal. Lack of integrated numbering often means manual tagging or reliance on external tickets.

Pros

Plastic hangers have a very low initial purchase cost, making them seem economically attractive for large quantities. They are extremely lightweight, which might be a minor convenience for staff handling many coats at once. Their widespread availability means they are easily sourced.

Cons

The primary drawback is their poor durability. Plastic hangers are highly prone to cracking, snapping, and breaking under stress, leading to frequent replacement. This results in significant plastic waste that contributes to landfills and pollution, as they are rarely recyclable. They also often provide poor garment support, causing garments to slip or crease, and lack integrated features like numbering for efficient coat check management.

Metal Hangers (Numbered) or Traditional Metal/Wood Hangers

Details	This category includes robust hangers made from durable, long-lasting materials. Numbered metal hangers (typically chrome-plated steel or heavy-gauge aluminum) are designed for efficient coat checks, often with a unique integrated numbering system. Traditional metal hangers (e.g., standard wire or solid steel) and wooden hangers (e.g., solid hardwood like beech or maple) are used for general hanging, offering superior durability, garment support, and a premium aesthetic without plastic.
General Market Price	 Numbered Metal Hanger: \$2 - \$10 per hanger (higher due to numbering feature). Traditional Metal/Wood Hanger: \$1 - \$5 per hanger (price varies by material, finish, and quality).
Estimated Price (Monthly Cost)	Initial investment of \$200 - \$1,000+ for a comprehensive set of numbered and traditional hangers. Recurring monthly cost of \$0 - \$20 (These hangers are exceptionally durable and can last for many years, even decades. Replacement is very infrequent, usually only due to loss, extreme damage, or aesthetic wear, offering significant long-term savings).

Labor Note	Metal Hangers: Heavier, which can offer a more stable feel but requires slightly more effort to handle in bulk. Integrated numbering significantly reduces manual tracking labor and errors in coat checks. Easy to clean. Wood Hangers: Sturdy, requires careful handling to avoid scuffs or
	dents. Can be heavier. Easy to clean

Usage & Procedures

At SHIA, our coat check operations utilize durable metal hangers, specifically those with integrated numbering systems. This allows for quick, accurate tracking of guest garments, streamlining the check-in and retrieval process. For staff and general use within the establishment, we employ traditional metal or wooden hangers to maintain consistency in quality and appearance. All hangers are regularly inspected for cleanliness and integrity. This system ensures efficient service, a premium presentation, and eliminates plastic waste from our hanging solutions.

Pros

This approach offers outstanding durability and longevity, as metal and wood hangers resist breaking and snapping, leading to minimal replacement needs and significant long-term cost savings. Numbered metal hangers specifically enhance efficiency in coat check operations by providing a reliable, integrated tracking system, reducing errors and improving guest service. Both metal and wooden hangers provide superior garment support (reducing creases and maintaining shape) and offer a premium, sophisticated aesthetic that elevates the guest experience. By eliminating plastic, these options contribute directly to reduced waste and a smaller environmental footprint.

Cons

The initial purchase cost for quality metal or wooden hangers is significantly higher than for plastic alternatives. Metal hangers can be heavier than plastic, which might be a minor consideration for staff handling large quantities. Metal hangers (if not stainless steel or properly coated) can be prone to rust in humid conditions. Wooden hangers, while durable, can be susceptible to dents or scratches and might require occasional maintenance.

27. Adhesive Tape

Adhesive tapes, such as standard clear plastic-based tapes (like Scotch Tape), are commonly used in restaurants for a myriad of light-duty tasks, from sealing small packages to temporary labeling. However, SHIA has consciously replaced these with paper-based alternatives, specifically painter's tape for temporary labeling and paper tape for general adhesion and packaging, to significantly reduce our plastic footprint and embrace more sustainable practices. These alternatives will eliminate approximately 50-100 rolls of non-recyclable plastic tape annually, actively supporting biodegradable waste streams.



Cost and Usage Analysis

This analysis compares the financial, operational, and environmental implications of using conventional plastic-based adhesive tape versus versatile paper-based alternatives (painter's tape and general paper tape) in a professional restaurant setting.

Details	These tapes are typically made from a thin film of plastic, most commonly polypropylene (BOPP), coated with an acrylic or rubber-based adhesive. They are transparent, lightweight, and come in various widths, often with a dispenser. They are widely used for general office tasks, light packaging, and temporary mending.
General Market Price	\$2 - \$10 per roll; \$20 - \$80 for a case of 6-36 rolls (price varies by brand, size, and dispenser inclusion).
Estimated Price (Monthly Cost)	\$10 - \$50+ (Plastic tape is a frequently used consumable. While individual rolls are inexpensive, a busy restaurant can go through many rolls monthly, leading to a continuous recurring expense).
Labor Note	Very easy to use with a dispenser, hand-tearable in some versions, but often requires scissors. Simple to apply for most tasks.

Plastic-Based Adhesive Tape

Pros

Plastic-based tapes are very inexpensive as an initial purchase, making them a default choice for many. They are transparent, which can be desirable for tasks where the underlying material needs to be visible. They offer a strong initial bond suitable for many light-duty applications.

Cons

The primary drawback is their environmental impact. Made from fossil-fuel-derived plastics, they are non-recyclable and persist in landfills for hundreds of years, contributing to plastic pollution. They are difficult to write on with most pens, can leave adhesive residue upon removal, and may yellow or degrade over time when exposed to light or heat.

Painter's Tape and Paper Tape

Details	This substitute category includes two primary types of plastic-free adhesive tapes:
	Painter's Tape: Made from crepe paper with a low-tack, removable adhesive (often acrylic). It's typically blue or green, designed for

	temporary masking or labeling without leaving residue. Paper Tape (e.g., Kraft paper tape): Made from strong kraft paper with various adhesives (e.g., water-activated, rubber-based, or acrylic). It's typically brown, offers a strong, permanent bond, and is widely used for sealing boxes and general heavy-duty packaging.
General Market Price	Painter's Tape: \$5 - \$20 per roll; \$40 - \$150 for a case of 6-12 rolls. Paper Tape (Kraft): \$8 - \$30 per roll; \$50 - \$200 for a case of 6-12 rolls (water-activated types may require a dispenser).
Estimated Price (Monthly Cost)	\$20 - \$100+ (While some paper-based tapes may have a higher unit cost, their versatility and ability to meet specific needs can balance out overall expenses. Usage volume will dictate monthly cost).
Labor Note	Both types are generally hand-tearable, increasing efficiency for quick tasks. Painter's tape is easy to apply and remove. Water-activated paper tape requires a specialized dispenser, which adds an initial setup cost but can speed up packaging tasks.

Usage & Procedures

At SHIA, painter's tape is extensively used for temporary labeling in the kitchen (e.g., dating food prep containers, marking mise en place), thanks to its easy removability and write-on surface. Paper tape (often kraft paper) is utilized for more permanent adhesion needs, such as sealing delivery boxes, packaging to-go orders, or general office adhesion where plastic is to be avoided. This allows for clear labeling and secure fastening without introducing plastic into our waste stream.

Pros

Both painter's tape and paper tape are completely plastic-free, directly contributing to the reduction of plastic waste and supporting environmental goals.³⁰ They are generally biodegradable (especially pure paper tapes with natural adhesives) and often recyclable along with the paper they are adhered to, simplifying waste streams. They are easy to write on with most pens, enhancing labeling efficiency. Painter's tape is specifically designed to be easily removable without leaving residue, which is invaluable for temporary applications. Paper tape offers a strong, durable bond for packaging.

Cons

Paper-based tapes are generally not transparent, which might be a limitation for certain aesthetic applications. They can be less water-resistant than plastic tapes, potentially losing adhesion in humid conditions or when wet. Some specialized paper tapes (like water-activated gummed tape) may require a dedicated dispenser and specific application

³⁰ Green Compostables. "All About Biodegradable Tape & The Benefits of Sustainable Packaging." Green Compostables Blog, 17 December 2021. <u>https://www.greencompostables.com/blog/biodegradable-tape</u>

techniques, which can be an initial learning curve and cost. The initial cost per roll can be higher than standard plastic tapes.

28. Interior Paint

Interior paints are fundamental for defining the ambiance and aesthetics of dining areas and bars. While most conventional paints rely heavily on plastic (synthetic polymer) binders and pigments, contributing to microplastic shedding and VOC emissions, SHIA has made a conscious decision to use **plastic-free paint**. This choice inherently leads to our signature pastel, single-color palette in our internal dining and bar areas, reflecting our commitment to a non-toxic and environmentally responsible environment. These alternatives will prevent the release of microplastics from painted surfaces and drastically reduce Volatile Organic Compound (VOC) emissions into indoor air, contributing to a healthier environment.

Cost and Usage Analysis

This analysis compares the financial, operational, and environmental implications of using standard plastic-based paints versus truly plastic-free paints, focusing on their unique characteristics, including color limitations, in a commercial restaurant setting.

Details	Conventional paints, commonly known as latex or acrylic paints, primarily consist of synthetic polymer binders (e.g., acrylic, vinyl acrylic, styrene-acrylic) which are forms of plastic. These binders create a durable film, and pigments, which can also contain plastic components, provide color. They are widely available in an extensive range of vibrant and custom colors.
General Market Price	\$30 - \$80 per gallon for commercial-grade interior paint.
Estimated Price	(Total Project Cost - e.g., for 1,000 sq ft)\$500 - \$2,000+ (This includes paint material for 2 coats, and basic supplies. Labor for painting is a separate, often larger, cost. The overall cost depends on square footage and desired coverage).
Labor Note	Relatively easy to apply by brush, roller, or sprayer. Fast drying times allow for quick recoating and project completion. Cleanup is generally simple with water for latex paints.

Standard Paint (Plastic/Synthetic Binders)

Pros

Standard paints are generally less expensive per gallon than specialized plastic-free alternatives, offering a lower upfront material cost. They boast an unlimited color palette, allowing for any desired hue, and often have faster drying times, speeding up renovation projects. Many offer high durability and scrubbability for easy maintenance, and are easy to apply and clean up with water.

Cons

The significant drawback is their plastic content. As the paint film weathers or is cleaned, it can shed microplastic particles into the environment, contributing to pollution.³¹ They often release Volatile Organic Compounds (VOCs) during and after application, contributing to indoor air pollution and potential health issues for staff and guests.³² These paints are derived from petrochemicals, making them less sustainable in their composition and lifecycle.

Details	Plastic-free paints are formulated using natural binders such as lime, clay, casein (milk protein), or plant-based oils, and are colored with natural mineral pigments (e.g., ochres, iron oxides). They contain no synthetic polymers, plastics, or petrochemicals. Due to the nature of natural pigments, their color palette is typically limited to soft, earthy, and pastel tones.
General Market Price	\$60 - \$150+ per gallon for high-quality natural, plastic-free paint (significantly higher unit cost).
Estimated Price (Monthly Cost)	(Total Project Cost - e.g., for 1,000 sq ft): \$1,000 - \$4,000+ (This includes paint material for 2-3 coats. The higher material cost and potentially more complex application contribute to a higher overall project expense compared to conventional paint).
Labor Note	Application can sometimes be more nuanced, requiring specific techniques (e.g., for lime wash) or more coats for full coverage. Drying times may be longer. Cleanup depends on the specific natural binder. Low to no VOCs means a healthier working environment.

Plastic-Free Paint (Natural/Mineral-Based - Substitute)

Usage & Procedures

³¹ Hailstone, Jamie. "Paint Is The Largest Source Of Microplastics In The Ocean, Study Finds." Forbes, 9 February 2022.

https://www.forbes.com/sites/jamiehailstone/2022/02/09/paint-is-the-largest-source-of-microplastics-in-the -ocean-study-finds/

³² Schütze, H., Fischer, M., Bahlmann, C. H., Purwins, T., Stengel, N., & Walz, M. "Microplastics from paint and tire wear: A comparative assessment of environmental load, release pathways, and ecological risks." Environmental Toxicology and Chemistry, 44(1), 26-39. 2025. https://academic.oup.com/etc/article/44/1/26/7942808

At SHIA, our internal dining and bar areas are painted using carefully selected plastic-free paints. These natural, mineral-based paints are applied to create our signature pastel, single-color aesthetic. The application process emphasizes proper surface preparation and, depending on the paint type (e.g., lime paint), may involve specific layering or curing times. Once dry, these breathable paints provide a durable, non-toxic finish that contributes to healthier indoor air quality.

Pros

Plastic-free paints are truly free of synthetic polymers and petrochemicals, eliminating concerns about microplastic shedding and reducing reliance on fossil fuels. They typically have zero or ultra-low VOC content, significantly improving indoor air quality and creating a healthier environment for guests and staff. Natural paints (especially lime and clay) are breathable, allowing walls to regulate moisture, which can help prevent mold and mildew. They offer a unique, beautiful matte, mineral aesthetic that enhances a natural or upscale design.

Cons

The initial material cost for plastic-free paints is significantly higher per gallon than conventional paints. Their color palette is naturally limited to pastel, earthy, and muted tones, as natural pigments do not achieve the vibrant hues possible with synthetic pigments. Some types may require specialized application skills or more coats for adequate coverage, potentially increasing labor costs. They might also have longer drying times and some varieties can be less resistant to scrubbing or abrasion than highly durable plastic-based paints.

29. Plastic Handle Broom and Mop

Brooms and mops are indispensable tools for maintaining cleanliness in any commercial establishment, including restaurants. While many standard cleaning tools feature plastic handles which are prone to breakage and contribute to plastic waste, SHIA prioritizes durability and sustainability by utilizing **wooden handle brooms and mops**. This choice ensures a more robust cleaning solution while significantly reducing our reliance on plastic. These alternatives will avoid the disposal of approximately 20-30 plastic-handled brooms and mops annually, significantly reducing plastic waste from cleaning implements.

Cost and Usage Analysis

This analysis compares the financial, operational, and environmental implications of using conventional plastic-handled brooms and mops versus more durable and sustainable wooden-handled alternatives in a professional restaurant setting.

Plastic Handle Broom and Mop

Details	These cleaning tools typically feature handles made from lightweight plastics such as polypropylene (PP) or polyvinyl chloride (PVC), often with synthetic bristles or mop heads. They are widely available, inexpensive, and designed for general sweeping and mopping tasks.
General Market Price	\$5 - \$25 per plastic-handled broom or mop (price varies by size, quality of bristles/mop head, and brand).
Estimated Price	\$20 - \$80+ (Plastic handles are prone to bending, cracking, or breaking, especially with rigorous commercial use or improper storage. Mop handles can degrade due to moisture. This leads to frequent replacement, resulting in a continuous, accumulating cost).
Labor Note	Lightweight and easy to maneuver, which can be convenient for lighter tasks. However, a flimsy handle can make heavy-duty scrubbing or sweeping less efficient and more strenuous.

Pros

Plastic-handled brooms and mops are initially very inexpensive, making them a low-cost option for equipping a cleaning staff. They are lightweight, which can make them easy to handle for some tasks. Their widespread availability ensures they are easily sourced from any janitorial supplier.

Cons

The primary disadvantage is their limited durability. Plastic handles are prone to bending, snapping, or cracking under pressure, especially during commercial-grade cleaning, leading to a significantly shorter lifespan. This constant breakage results in substantial plastic waste that contributes to landfills. Over time, plastic can degrade, becoming brittle and potentially impacting overall cleaning efficiency.

Wooden Handle Broom and Mop

Details	This alternative features robust handles crafted from solid wood (e.g., hardwood, bamboo), paired with various types of bristles (natural or durable synthetic) or mop heads. The focus is on the long-lasting, plastic-free handle component, with mop heads and bristles often being replaceable for extended tool life.
General Market Price	\$20 - \$60 per wooden-handled broom or mop (higher initial cost than plastic).

Estimated Price (Monthly Cost)	Initial investment of \$100 - \$300+ for a comprehensive set. Recurring monthly cost of \$0 - \$15 (Wooden handles are exceptionally durable and can last for many years, even decades, with proper care. While brush heads or mop heads may need replacement, the handle itself is a one-time purchase, offering significant long-term savings).
Labor Note	Heavier and more robust, which can provide better leverage and a more stable feel for effective, deep cleaning. Requires proper drying after use to prevent moisture damage to the wood.

Usage & Procedures

At SHIA, our cleaning staff utilize wooden-handled brooms and mops for daily floor maintenance. The sturdy wooden handles provide excellent leverage for sweeping debris and applying consistent pressure during mopping, ensuring a thorough clean. After use, the handles are wiped down and allowed to air dry properly to preserve the wood's integrity, emphasizing long-term care over disposable convenience.

Pros

Wooden handles offer significantly superior durability and longevity compared to plastic, resisting bending and breaking, which translates to far less frequent replacement and substantial long-term cost savings. By choosing wood, SHIA directly reduces plastic waste and promotes the use of a renewable, biodegradable resource. The solid construction often provides a more comfortable and stable grip, potentially leading to more effective and less strenuous cleaning. Wooden handles also contribute to a more natural and professional aesthetic in cleaning supplies.

Cons

The initial cost for wooden-handled brooms and mops is higher than for plastic alternatives, requiring a larger upfront investment. Wooden handles are generally heavier, which some users might find less comfortable for very prolonged or light-duty tasks. Wood, being a natural material, can be susceptible to moisture damage (e.g., splintering, mold if not properly dried) and may require more careful maintenance after wet use.

30. Umbrellas

The widespread use of conventional umbrellas often incurs hidden environmental waste costs due to their reliance on plastic components and synthetic fabrics that frequently end up in landfills or polluting ecosystems. SHIA extends its plastic-free commitment even to guest amenities by offering high-quality, eco-friendly umbrellas. These are designed for durability and crafted from sustainable materials, reflecting our dedication to mindful choices in every detail of the guest experience.

Cost and Usage Analysis

This analysis compares the financial, operational, and material considerations of using conventional plastic-heavy umbrellas versus SHIA's chosen eco-friendly alternatives for guest use.

Conventional Plastic/Synthetic Umbrella

Details	Standard umbrellas typically feature frames made from metal and plastic, with canopies often crafted from synthetic plastic-derived fabrics such as polyester or nylon. These fabrics are frequently treated with durable water repellent (DWR) coatings, which can contain per- and polyfluoroalkyl substances (PFAS). Handles are commonly made of plastic or foamed plastic. They are widely available and functional but contribute to plastic and synthetic waste streams.
General Market Price	\$40 - \$70 for a good quality, sturdy commercial-grade synthetic umbrella.
Estimated Price	\$10 - \$30 (Even good quality umbrellas in a commercial setting are prone to being lost, broken, or not returned when loaned out. This creates a recurring replacement cost that can accumulate over time).
Labor Note	Easy to store and use. Requires occasional cleaning if returned soiled.

Pros

Readily available, wide variety of designs, typically lightweight, and boasts a lower individual unit purchase cost.

Cons

Primarily manufactured from fossil-fuel-derived plastics and synthetic fabrics, contributing significantly to plastic pollution and landfill waste at their end-of-life. Their production often carries a high environmental footprint, and their longevity can vary, leading to frequent replacement if often loaned or used.

Eco-Friendly Umbrella (Substitute)

Details	SHIA opts for high-quality, eco-friendly umbrellas primarily constructed from natural materials or recycled content. For instance, our umbrellas feature durable canopies made from materials like organic cotton or recycled PET (derived from recycled plastic bottles), often paired with
	sustainably sourced handles (e.g., bamboo, FSC-certified wood) and

	frames engineered for longevity. While specific brand names (such as "Haasch" as referenced by our team for its unique quality) might be a niche choice, our selection aligns with brands that prioritize natural and recycled materials, showcasing unique design and robust construction.
General Market Price	\$70 - \$120+ for a high-quality eco-friendly umbrella made with natural or recycled materials.
Estimated Price (Monthly Cost)	Initial investment of \$210 - \$360 for our curated collection of three umbrellas. Recurring monthly cost of \$0 - \$10 (While the upfront investment is higher, these umbrellas are typically built for superior durability and a longer lifespan. Recurring costs are minimal, primarily covering very infrequent replacement due to loss or severe accidental damage).
Labor Note	Handling and storage are similar to conventional umbrellas. Natural fabrics may require specific cleaning instructions to maintain their integrity and appearance.

Usage & Procedures

SHIA maintains a curated collection of three high-quality, eco-friendly umbrellas readily available for guest convenience on rainy evenings. These are offered to valued guests for loan when heading to taxis, with the understanding that they are typically returned. For guests seeking a tangible souvenir of their experience, they also have the option to purchase one. This policy not only reduces the need for single-use umbrella purchases but also promotes sustainable consumer choices and provides a unique, eco-conscious amenity that guests appreciate. We proudly highlight the unique, sustainable materials of these umbrellas, turning a practical item into a point of connection with SHIA's overarching sustainability values.

Pros

Manufactured from sustainable, recycled, or natural materials (e.g., recycled PET, organic cotton, bamboo handles), significantly reducing reliance on virgin plastics and lowering the overall environmental footprint. These umbrellas are often built with superior craftsmanship, enhancing their durability and longevity, and directly aligning with SHIA's brand values. They offer a unique, eco-conscious amenity that guests can appreciate or even purchase, reinforcing our commitment to sustainability in every detail.

Cons

Requires a higher initial investment per unit compared to basic synthetic options. While their perceived value often encourages returns, they are still susceptible to loss if loaned out frequently. Natural fabrics may require more careful handling or specific cleaning procedures.

31. Candles

The widespread use of conventional candles, typically made from paraffin wax, often incurs hidden environmental waste costs due to their non-biodegradable nature, persisting in the environment for centuries after use. Their combustion can also release harmful volatile organic compounds (VOCs). At SHIA, we prioritize a cleaner burn and a circular approach by **using candles made from natural, renewable waxes**, either purchased from ethical suppliers or crafted in-house. This ensures that even the ambient lighting aligns with our deep commitment to environmental health.

Cost and Usage Analysis

This analysis compares the financial, operational, and material implications of using conventional paraffin wax candles versus SHIA's eco-friendly beeswax and soy-made candles, considering their extensive use throughout the restaurant.

Details	These candles are primarily composed of paraffin wax, a byproduct of the petroleum refining process. They use cotton wicks, often with a metal core, and are typically encased in glass or aluminum (for tealights). While inexpensive and widely available, their production relies on fossil fuels, and their slow, non-biodegradable decomposition leaves a lasting environmental footprint.
General Market Price	\$0.20 - \$2.00 per unit (for bulk votives, tealights, or smaller pillar candles), varying by size and quantity.
Estimated Price	Given their widespread use on every table, at the bar, entrance, bathrooms, and dining areas, a restaurant like SHIA would likely use hundreds of candles per month. This could lead to a recurring monthly cost of \$200 - \$500+ for continuous replenishment.
Labor Note	Minimal labor involved beyond daily placement and replacement of used candles.

Conventional Paraffin Wax Candles

Pros

Very low individual unit cost, widely accessible, and offers a consistent, bright flame.

Cons

Derived from fossil fuels, non-biodegradable and persist in landfills for centuries. Their production and burning can contribute to air pollution (VOCs) and their disposal generates significant waste.

Eco-Friendly Beeswax & Soy Candles (Substitute)

Details	SHIA primarily uses candles made from natural, renewable waxes: beeswax (a sustainable byproduct of beekeeping) and soy wax (derived from soybeans). These natural waxes offer a cleaner burn and are fully biodegradable. While commercially available natural candles can be expensive (pre-made beeswax candles range from \$45.00 to \$73.00 for a pack of 18), SHIA significantly offsets this by making a portion of its candles in-house, utilizing raw materials and craftsmanship to control quality and cost. We are collaborating with local beekeepers and continuing our search for more suppliers to ensure a sustainable supply of beeswax to meet our demand.
General Market Price (Initial Equipment Investment)	 Wax Melting Pot (features internal thermometer and heat control, with a pour spout): \$69.59 (one-time purchase) Molds: \$17.99 x 8 = \$143.92 (one-time purchase) Total estimated initial equipment investment: \$213.51
Estimated Price (Monthly Cost for In-House Making)	 Wax: Beeswax pellets (\$33.99) + Soy wax (\$29.80 x 2) = \$93.59/month Wicks (pre-tabbed): \$5.99 x 2 = \$11.98/month (for 200 candles) Total estimated recurring monthly cost: \$105.57 At this cost, we can create 200 candles per month, which is approximately 30 more than our current monthly need. This method allows us to use 17 votives in the restaurant every two days, a significant increase in usage efficiency compared to replacing one store-bought beeswax candle per day.
Labor Note	The candle-making process itself is highly efficient, taking only about an hour and a half to produce 200 votives. The remaining time is simply waiting for the candles to harden to be ready for usage.

Usage & Procedures

SHIA uses these candles extensively throughout the restaurant—on each table, at the bar, entrance, in the bathrooms, and between dining areas—creating a warm, inviting ambiance. Our in-house candle making allows us to control the materials, ensuring purity and freshness. When a candle is used, the remaining wax and wick are collected. From a sustainability perspective, traditional paraffin wax votives can take 500+ years to break down in landfills.³³

³³ Can You Compost Candle Wax," GreenwashingIndex.com, <u>https://www.greenwashingindex.com/can-you-compost-candle-wax/</u> (Accessed May 28, 2025).

In contrast, our beeswax/soy blend candles are biodegradable and break down in compost over 2-6 months under proper conditions, if discarded at all. This is further minimized as we melt it again and redistribute any leftover wax from the votives at the end of their lives. These remnants can even be used to make other eco-friendly products like beeswax cloth or paper thereby eliminating the need for plastic wrap, paper wrap, etc.

Pros

Made from natural, renewable, and biodegradable resources that compost within months. Offers a cleaner burn with fewer harmful emissions. Supports sustainable agriculture (soy) and beekeeping (beeswax). Creates a unique, high-quality, and authentic ambiance that aligns perfectly with SHIA's sustainable branding. In-house making provides significant cost savings compared to purchasing commercial natural candles and allows for superior quality control and customizability. The ability to remelt remnants and use them for other products creates a truly closed-loop, zero-waste system.

Cons

Requires an initial investment in candle-making equipment. Requires dedicated labor for production, though it's efficient. Sourcing sustainable beeswax in sufficient quantities can be a challenge.

Cost of Going Plastic-Free So Far

Ultimately, our transition to a plastic-free operation represented a strategic upfront investment, not merely a cost. We firmly believe this commitment, which involves rethinking everything from our core operations and plating to the materials we use, ensures not only the longevity and durability of our items but also fosters a significantly healthier environment for our guests and staff. This integrated approach ultimately delivers substantial long-term economic and ecological benefits, proving that sustainability is a smart economic decision and a holistic investment. We look forward to sharing a more detailed cost analysis in our end-of-year 2025 report.

Estimated Total Plastic Waste Eliminated in 7 Months

In its first seven months of operation (November 2024 - May 2025), SHIA's commitment to being plastic-free has prevented the disposal of approximately 229 kilograms to 351 kilograms (0.23 to over 0.35 metric tons) of plastic waste, based on conservative estimates.³⁴

To put this into perspective, this volume of plastic is roughly equivalent to eliminating approximately 11,000 to 20,000 single-use plastic water bottles or nearly the combined weight of two to three small car engines from the waste stream.³⁵ This directly translates into a healthier planet by significantly reducing landfill burden, safeguarding oceans and ecosystems from pollution, conserving vital fossil fuels and energy, and critically, minimizing the release of harmful microplastics that can permeate our environment and food supply. Ultimately, our dedication to sustainability is yielding tangible and impactful ecological results from day one, contributing to a cleaner, healthier future for all.

³⁴ Please note that these figures are estimations based on available data and operational observations, and are not independently verified for absolute accuracy. This figure represents the total plastic waste eliminated by replacing 31 common plastic items used in the restaurant. For each item, the amount of plastic eliminated is calculated by multiplying its estimated average weight per unit (determined from product specifications, manufacturer data, or in-house sampling) by its observed replacement frequency over the 7-month period. This includes significant contributors such as commercial food wrap, disposable gloves, various types of packaging (takeaway containers, portion cups, deli containers), kitchen tools (spatulas, cutting boards, non-stick pans, cryovac bags), cleaning supplies (spray bottles, brooms/mops, trash bags, and bins), administrative items (markers, staplers, tape), and guest-facing materials (menus, check presenters, straws, napkins, FOH/silverware organizers, hangers, and soap dispensers).

³⁵ Please note that these equivalency figures are estimations based on available data and generally accepted averages for the referenced items, and are not independently verified for absolute accuracy. This equivalency is based on the comprehensive total of approximately 229-351 kilograms of plastic waste eliminated across all 31 key plastic items identified and tracked. For context:

[•] The comparison to approximately 11,000 to 20,000 single-use plastic water bottles is derived assuming an average 500ml plastic water bottle weighs approximately 18-20 grams (0.018-0.020 kg).

[•] The comparison to nearly the combined weight of two to three small car engines references a typical small car engine, which generally weighs between 100-150 kilograms.

Conclusion

SHIA's commitment to sustainability extends far beyond our doors; we envision a future where sustainable practices are foundational, not niche, across the culinary world. We champion industry-wide transformation through open dialogue, shared knowledge, and active collaboration, believing that through collective effort, we can forge a more resilient and impactful landscape. By transparently sharing our journey, SHIA serves as a tangible example and valuable resource, and we are actively seeking partnerships to achieve this shared vision. Our initial efforts have already prevented hundreds of kilograms of plastic from entering landfills and ecosystems, demonstrating the significant impact achievable from conscious choices.

Our plastic-free future is an ongoing commitment. We will continue to lead and evolve our research, exploring new materials and practices to further reduce our environmental footprint. We're also dedicated to expanding our educational programming, sharing our insights to inspire broader industry transformations. Look for our next comprehensive update at the end of 2025, where we'll share new findings and continued progress in our plastic-free journey, as we also work to develop and share insights on other vital sustainability initiatives, including gas-free operations and reduced food waste. Join us in this essential endeavor.





Contact Information

We are eager to partner with you to collaboratively build a more sustainable culinary future.

Edward Lee Executive Chef and Owner SHIA Restaurant info@shiarestaurant.org

Monica Kang

Chief Strategy and Partnerships Officer SHIA Restaurant monica@shiarestaurant.org



Appendix: Your Quick Checklist

KITCHEN

- □ Cling wrap
- Quarter containers or deli containers with lid
- Cutting board
- □ Squeeze bottle
- □ Trash bags and bins
- Disposable food grade gloves
- $\hfill\square$ To-go containers, plastic cutlery, and plastic bags
- Portion bags and cups
- Cryovac bags
- □ Silicon mold and mats
- Nonstick pans
- Rubber spatula
- Chef's knives with plastic handle

FRONT OF HOUSE

- Permanent markers
- □ Plastic spray bottle
- □ Laminated plastic menu
- □ Plastic trash bin
- □ Server trays
- Plastic straws
- Plastic stapler
- □ FOH organizer
- □ Silverware organizer
- □ Bathroom soap dispenser
- □ Check presenter
- Napkins
- □ Hangers
- □ Adhesive tape
- □ Plastic-free paint
- Plastic handle broom and mop
- Umbrella
- Candles