Use Reusables

Greening the Packaging Most People Never See

February 13, 2013
Santa Clara University – Santa Clara, CA
Top 5 Materials Landfilled from Commercial Sector

1. Food Waste
2. Other Paper
3. Uncoated Cardboard  *Boxes*
4. Unpainted Wood  *Pallets*
5. Film Plastics  *Stretch Wrap*
The Use Reusables Campaign

• Helping businesses convert to more sustainable reusable alternatives.

• Reducing greenhouse gas (GHG) emissions and solid waste associated with one-time and limited-use transport packaging materials:
  • Production
  • Use
  • Disposal
Alameda County Waste Management Authority and Recycling Board
www.stopwaste.org

EPA Climate Showcase Communities Grant
• Supports national expansion of Use Reusables educational workshops, free tools and online resources
www.epa.gov/statelocalclimate/local/showcase/

The RPA – Trade association
• Promotes the value and expansion of reusable packaging systems
• 52 member companies
(Manufacturers, End Users, Technology Providers and Service Providers)
How StopWaste can Help

• Training Opportunities – like today’s workshop
• Facilitate Vendor/Supplier Conversation
• Logistics Assistance
• Financial Assistance
• Become a model case study
Benefits of Reusables

• Save your company money
• Improve efficiency
• Good corporate citizenship & sustainability
• Lasting change: Best Practice
Additional Benefits

• Product protection
• Reduced waste costs
• Lower materials costs over time
• Improved worker safety & ergonomics
• Longer useful life of packaging
Our Workshop Goal Today

• Introduce reusable transport packaging
• Explore benefits of reuse in the supply chain
• Provide information and resources
• Review the next steps
• Offer free, one-on-one consultation with a Reusables expert
• Answer your questions
Workshop Agenda

PART I – Presentation, 9:00 – 11:30

Intro to Reusables
  • Reusables in Action
    *EMC Corp. Case Study – Ali Sholer
  • Exploring the Benefits
  • Attributes of Good Reusables Opportunities
    *Kaiser Permanente Case Study – Nicla Sinnott

11:30 – 12:00: Break/Lunch
Workshop Agenda

PART 2 – Panel Discussion, Noon – 1:00 p.m.

Panelists:

**Doug Heywood – Owens & Minor**
Supply Logistics Partner for Stanford University Medical Center

**Dean Mayes – Finelite**
Director of Manufacturing

**Nancy Parmer – UPS**
Senior Director of Sustainability

Post-Workshop:
One-on-one with a Reusables Team Member
Workshop Materials
Reusables are Not:

- Single use
- Limited use
Merriam Webster defines Reusable as:

**re·us·able** *adj* \rē-ˈyū-zə-bəl\*: capable of being used again or repeatedly

Reusable Packaging is comprised of pallets, containers, wraps, bands and dunnage designed for reuse within a supply chain
RPA Definition of Reusable Packaging Product or System

• Typically never disposed of by the end user;
• Used to move components, finished products or raw materials;
• Durable construction such that it will function in its original condition:
  – for multiple trips,
  – in all weather conditions,
  – under maximum capacity load conditions,
  – without product failure;
• Lifetime is measured in years; and
• Qualifies as source reduction
Opportunistic vs. Planned Reuse
Everyday Reusables in Action
Other Reusables in Action

Reusable Pallet Wrap – Closed Loop Distribution

Planet Organics, Food & Beverage Manufacturer
• Replaced disposable stretch wrap with reusable pallet wraps.
• Reduced stress and strain from wrapping dozens of pallets a day by hand.
• Avoided time and cost required to dispose of stretch wrap.

Benefit: Lower material costs; eliminated expendable packaging costs
Other Reusables in Action

Reusable Bands and Pallets

US Foods, San Francisco Division

• Reusable bands secure pallet loads instead of stretch wrap.
• Plastic film waste reduced by 50 tons/yr = $19,200 savings/yr

Benefit: Lower material costs – reduce waste costs
Questions before we move on?
Our Next Speaker

Eric Fredrickson
President, Thor Consulting
Email: Thorcrate@gmail.com

30 Years of experience in Reusable Packaging across all industry sectors.
Many Benefits of Reusables

Financial  Environmental  Health & Safety
Revenue Enhancement

• Merchandising at Store Level
• Increase brand loyalty – a bond with customers
Case Study: EMC’s BKube Project

- IT storage hardware manufacturer
- Products shipped to customers around the world from facilities in the US, Ireland, Brazil & China
- Reduced cardboard waste by 160,000 lbs/year

Welcome, Ali Sholer – EMC
Financial Benefits

Revenue Enhancement
- Merchandising at Store Level
- Increase brand loyalty – a bond with customers

Capital Utilization – Lower Materials Cost over time
- Excellent ROI on Reusables investment
- Pooling/Rental of Reusables – outsource CapEx
Reusables Benefits in Action

ANG Newspapers (Now Bay Area Newspaper Group – Mercury News)

• Transitioned to reusable plastic pallets (pooled system)
• Prevents 37 tons of wood-waste/year
• Cut labor costs by $46,000
• Color coding facilitates batch identification for accurate delivery

“We’ve enjoyed a good return on the reusable plastic pallets. They’ve cut costs, improved operations and reduced our wood-waste.”

SAM LOVATO, ANG Property and Telecommunications Manager

Benefit: Excellent Return on Investment
Reusables Benefits in Action

Plastic Pallets for Beverage Distribution – Open Loop

PepsiCo’s Gatorade Plant
• Eliminated product loss, ~100s of cases a day, from full pallets of product tipping overdue to inconsistent dimensions or missing boards
• Plastic pallet is 25 lbs lighter, resulted in transportation savings

Benefit: Reduced product damage and Reduced total freight cost
Financial Benefits

Revenue Enhancement
• Merchandising at Store Level
• Increase brand loyalty – a bond with customers

Capital Utilization
• Excellent ROI on Reusables investment.
• Pooling/Rental of Reusables – outsource CapEx

Operating Expense Reduction
• Eliminate expendable packaging expense
• Reduce waste costs
• Reduced product damage or spoilage
• Reduced labor and total freight cost.
Reusables Benefits In Action

Electro-Static Discharge (ESD) Reusable Packaging for Electronics

- ESD reusables handle & transport sensitive electronics like circuit boards.
- Replace single use plastic trays in anti-stat bags and corrugated boxes.
  - Excess handling labor
  - High packaging cost
  - High packaging waste burden
  - Increased risk of component damage.
- ESD Reusable packaging can:
  - Generate ROI by eliminating packaging
  - Eliminate packaging waste
  - Reduce handling labor
  - Reduce damage to valuable components
ESD Reusable Packaging for Electronics - Material Selection

• Material can be tailored to meet application needs:
  – Conductive materials: Surface resistivity $10^2\Omega/$sq. to $10^5\Omega/$sq.
  – Dissipative materials: Surface resistivity $10^5\Omega/$sq. to $10^{11}\Omega/$sq.
  – Insulating materials: Surface resistivity higher than $10^{11}\Omega/$sq.

• Carbon black in polymer matrix provides permanent conductive properties – can’t wash/wear off or vary with environment.
Reusables Benefits In Action

ESD Reusable Packaging for Electronics – Characteristics of Best Fits

- Work-in-process or closed loop applications – manufacturer to assembly
- High volume applications with short shipping distances
- High value components – high consequence of in-transit damage
- Long project life to generate return on reusable investment
- Opportunities to leverage automation at both ends of supply chain
- In conjunction with standardization in processes, storage & shipping.
Reusables Benefits In Action

ESD Reusable Packaging for Electronics – Types of Containers

- Standard Footprint Injection Molded Containers
  - Automotive or Metric – RAKO pallet optimization
  - Can be used for multiple programs
- Standard Thermoformed Trays
- Custom Injection Molded Trays
  - Increase precision for greater pack density
- Custom Thermoformed Trays
  - Lower tooling cost
- Adjustable Printed Circuit Board Holders
Reusables Benefits In Action

ESD Reusable Packaging for Electronics – Return on Investment

- Thermoformed trays – Lower tooling, higher unit cost 2,500 - 5,000 BE
- Injection molded trays – Higher tooling, lower unit cost 10,000 - 15,000 BE

![Graph showing the comparison of Expendable, Thermoformed, and Injection Molded cost over units produced.](chart.png)
Reusables Benefits In Action

ESD Reusable Packaging for Electronics – Added Value Opportunities

• Reusable ESD Systems can be integrated into automated load & unload stations – reducing labor and potential for handling damage.
• Trays can also be stacked, de-stacked and nested using automation.
• Trays can provide total product protection, eliminating outer containers.
• Significant increases in packing density and exact part counts can be achieved to reduce logistics costs.

Results: Improved Quality. Reduced Labor & Better Inventory Control

Courtesy of: George UTZ, Inc.
www.utzgroup.com
Environmental Benefits
“Reduce & Reuse” are the Most Sustainable
Disposable Containers & Packaging are 30% of North America’s Municipal Solid Waste

- 56% of these valuable resources are wasted in landfills.
- The remaining 44% are recycled; often downcycled into less valuable products.
Over 1/3 of U.S. Greenhouse Gas Emissions are Attributable to Producing & Transporting Goods


(Provision of Goods: all consumer goods including building components and vehicles.)
Environmental Impact of Disposable Packaging

One Ton of Corrugated Cardboard:
• Generates 5.3 MTCE of greenhouse gases – over 3 times as much as plastic
• Consumes 17 trees
• Consumes 7,000 gal. of fresh water
• Generates 3.3 cubic yards of landfill
• Consumes 4,000 KWH of energy

Wooden Pallets in the US:
• Consume 14 – 17 million trees a year
• Consume 30% of all hardwood used
• Represent 2-3% of all landfills
NUMMI

• NUMMI reduced cardboard consumption by 60% by purchasing, using and requiring suppliers to use reusable shipping containers.
• Prevented 11,000 tons of solid waste from being generated
• 58.3 MTCE greenhouse gas reduction
• Resulted in $2.5 Million/yr savings

Benefit: Waste Prevention, GHG reduction
## Environmental Benefits of Reusables

<table>
<thead>
<tr>
<th>Environmental Benefit</th>
</tr>
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<tbody>
<tr>
<td>Reusable transport packaging containers</td>
</tr>
<tr>
<td>• generate 29% less total greenhouse gas emissions;</td>
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<td>• require 39% less total energy; and</td>
</tr>
<tr>
<td>• produce 95% less total solid waste on average.</td>
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</table>

See Reusables 101 page 9
Health & Safety Benefits
Health & Safety Benefits

- Reduce injury from overfilling non-uniform boxes.
Peerless Coffee & Tea Company – Oakland, CA

• Replaced single use cardboard boxes with reusable totes for three of their Bay Area delivery routes
• Saving 1.5 tons of cardboard per year = 18 tons of avoided CO2 emissions

Benefit: Reduced Injury, Lower Material Costs over Time
Health & Safety Benefits

- Reduce injury from overfilling non-uniform boxes.
- Reduce injury from broken pallet debris hazards such as splinters, nails and wood on the floor.
Plastic Pallets for Beverage Distribution – Open Loop

PepsiCo’s Gatorade Plant

• Switched from wood pallets to leased reusable plastic pallets
• Significant savings by eliminating damage to product from pallets
• Reduced equipment jams
• Minimized labor needed to sort out bad pallets
• Cleaner warehouse with less hazard-causing debris

Benefit: Reduced product damage & improved safety
Health & Safety Benefits

- Reduce injury from overfilling non-uniform boxes.
- Reduce injury from broken pallet debris hazards such as splinters, nails and wood on the floor.
- Ergonomically designed reusable totes can reduce bending, lifting and handling injuries.
Reusable Totes for Office Relocation – Open Loop

StopWaste.Org used totes to pack and transport items during their office move.

- Rigid totes offered better protection of contents.
- Dollies eliminated heavy lifting.

- Elimination of cardboard boxes and tape saved set-up and clean-up time.
- Increased moving truck capacity by 40%-50%, cutting GHG emissions.

Benefit: Improved efficiency, Safety & Ergonomics
Health & Safety Benefits

- Reduce injury from overfilling non-uniform boxes.
- Reduce injury from broken pallet debris hazards such as splinters, nails and wood on the floor.
- Ergonomically designed reusable totes can reduce bending, lifting and handling injuries.
- Reduced risk of food contamination with sanitized totes.
- Reduce injuries from rolling drums and chime removal.
Marietta Corp – Major supplier of hotel amenities

- Reusable bag-in-box, foldable IBCs to transport & store bulk liquid
- Eliminated the use of drums and single-use IBCs
- Single use liners eliminated effluent waste, bag wringing reduced residual waste
- Eliminated risk of batch to batch contamination.
- Increased storage space.

Benefit: Reduced Contamination and Reduce injury from drums
Questions before we move on?
Attributes of Good Reusables Opportunities

• Within One Facility, Closed Loop, or Managed Open Loop
• Flow of Consistent Products in Large Volumes
• High Turn Rate
• Large and/or Bulky Products, or Easily Damaged Products
• Suppliers or Customers Grouped Near One Another
• High Waste Disposal or Recycling Costs
• Sustainability Goals or Mandates
Reusables Systems: 3 Types

• **Work-in-Process**: Used in-plant for storage and transport within a single facility.

• **Closed-Loop**: Reusables move through supply chain without 3rd party management; this approach is ideal for reusables.

• **Open-Loop**: A 3rd party company manages the return of empty containers and distribution of containers back to the manufacturer; best for consistent flow with high volume.
Attributes of Good Opportunities

Within a Single Facility

![Diagram showing a manufacturer facility connected to in-plant storage and in-plant transport.](image)
Ghirardelli Chocolate purchased reusable totes to move products in “work-in-process” for one of their production lines. This switch saves costs and environmental impacts of 228 tons/yr of cardboard boxes that were previously purchased, assembled, handled and recycled – 1,208 MTCE greenhouse gas emissions avoided.
Attributes of Good Opportunities

Closed-Loop System
CarQuest – Closed Loop

Distribution Totes

CarQuest Auto Parts uses to distribute less-than-case loads of auto parts from its DCs to its customers.

- Durable totes provide better protection to parts reducing damage.
- Ergonomic handles reduced back and wrist injuries.
- Increased stack height increased trailer capacity to reduce freight.
- First generation tote eliminated corrugated waste with rapid ROI.
- Second generation tote nearly eliminated tote damage and injuries associated with handling damaged totes.
Attributes of Good Opportunities

Managed Open-Loop System

Manufacturer/Shipper

Customer/Retailer
Open Loop Pools In North America

- RPCs for Produce, Meat and Eggs.
- GMA Pallet for retail distribution.
- IBCs and Bulk Bins for liquids, solids & parts.
- Office Moving Crates.
- Other specialty applications.
Value Points of RPCs and Fresh Produce

- Reduced product damage and shrink
- Field heat removed quicker
- Higher produce quality at store level
- Better truck utilization to retail
- Possible use as “one touch merchandising”
- Cost efficient against traditional packaging
- Reduced disposal time at store level
Stability
Unitization and Cube Efficiencies
Disposal vs. Re-collection
Fresh Produce – Open Loop Pooling

Use Reusables
Reusable Transport Packaging Saves Your Company Money and Resources

Case Studies
Many companies are realizing the benefits of reusable transport packaging already. Here are some case studies highlighting different applications for reusables.

PepsiCo Frito-Lay Plant: Reusable Pallets
PepsiCo’s switch to more durable reusable pallets was cost-neutral, and brought numerous product protection, safety, and labor benefits to an Oakland bottling plant. Download case study (pdf).
View video (0:55).

Savoy Spinach: Driving down costs with returns
Switching from wooden bushel baskets to returnable, nestable and stackable HDPE containers has helped drive costs out of the supply chain for the Savoy Spinach Industry. View case study.

StopWaste.org: Reusable Moving Crates
When StopWaste.org moved to a new office, staff wanted to avoid generating the mountain of cardboard typically of a traditional move. By choosing reusable moving crates they reduced waste, cut back on labor, and improved the efficiency of the move. Download case study (pdf).
View a video.

ANG Newspapers: Efficiencies from plastic pallets
ANG Newspapers worked with the StopWaste Partnership to identify how they might further improve their environmental performance. StopWaste assessed the situation and determined that ANG could improve efficiency in their distribution system for reusuable plastic pallets. Download case study (pdf).
Attributes of Good Opportunities

- High Waste Disposal or Recycling Costs
- Sustainability Goals or Mandates
Attributes of Good Opportunities

- Flow of Consistent Products in Large Volumes
- High Turn Rate
Large or Bulky Products

Easily Damaged Products

Example: Toyota Logistics Services used to pack their heavy carpet and large truck bed liners in disposable packaging. They switched to reusables and prevented 3,000 tons of combined wood and cardboard waste and saved $3.5 million for all six facilities per year.
Other Factors Affecting Financial Value

- Supply Chain Cycle Time
- Geography of Return Logistics
- Reverse Supply Chain Predictability
- Business Seasonality
- Customization
- Number and dispersion of end users
- Degree of sanitization required after each use
- and…
Other Factors Affecting Financial Value

Container Theft

Pallet Repair
Case Study: Kaiser Permanente (KP)

- Livermore Distribution Center switched to reusable totes for “less than case load” distribution
- Use color-coded totes for distribution to over 55 locations in No. CA

Welcome, Nicla Sinnott - KP
Questions before we move on?
7 Steps to Implementing Reusable Transport Packaging at Your Business
Step 1 - Understanding

What are reusables?

Your decision-makers and other stakeholders need to learn what reusables are and how they help your business.
Step 2: Identify Potential for Reusables

Where are the “Low Hanging” Opportunities?

Internal Work in Process
1. What work in process is creating waste?

Supply Chain
1. What supply chain and/or Customer relationships….
   • Are Closed Loop?
   • Reuse with Other Suppliers/Customers?

Logistics
1. What type(s) of reusables will work?
2. Will we Buy or Lease?
3. Where/how will we store them?
4. Do we need to clean them?
5. How will we track them and get them back?
Step 3: Gather Information

Get Cost Estimates for Equipment

Two Options:

• Directly from vendors

• Submit an Reusables Information Request Form

Go to the “Resources” tab for a list of vendors
## Step 4: Assess the Costs

### Use Reusables

**Reusable Transport Packaging: Save Your Company Money and Resources**

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### Reusables Basics

Reusable transport packaging offers environmental advantages while it adds to your bottom line. Click here to find out how reusable transport packaging can benefit your company.

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### Cost Comparison

Hundreds of companies have already benefited from reusable transport packaging. These companies found that switching to reusables brought increased product protection, improved worker safety and efficiency throughout the distribution network. Do the numbers and see if it makes sense for your company.

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### Case Studies

A viable alternative to one-time or limited use shipping containers, sturdy, long-lasting reusable transport packaging can save your company money, while reducing greenhouse gas emissions, preventing waste and saving energy. Read what other companies say.

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### News & Events

**Latest news:**

- **Reusable Transport Packaging Workshops**
  - Next Workshop: February 13, 2013

**View past workshop presentations**

**Sign up for email notification**

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**Use Reusables is supported by the StopWaste Partnership and the Reusable Packaging Association.**

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Step 4: Assess the Costs

www.usereusables.com/cost/cctool.html

1. Perform a cost & sustainability comparison using our free cost calculator

2. Review the ROI to determine if it fits within your company’s threshold
## Step 5: Buy In

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Priorities</th>
<th>Reusables Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance Department</td>
<td>Revenue</td>
<td>Cost Calculator to estimate ROI</td>
</tr>
<tr>
<td>Logistics Managers</td>
<td>Efficiency and Safety</td>
<td>Case Studies and examples of increased unitization and reduction of workplace hazards</td>
</tr>
<tr>
<td>Purchasing Department</td>
<td>Cost Savings</td>
<td>Cost Calculator to identify all costs</td>
</tr>
<tr>
<td>Suppliers/Customers</td>
<td>Product Protection</td>
<td>Case Studies and examples of product protection; Request samples</td>
</tr>
</tbody>
</table>
Step 6: Procure Equipment or Services

**Identify Funding**
- Capital Expense from which budget?
- StopWaste.Org/EPA grant funding

**Procure Equipment**
- Order the equipment
- Accessory equipment: Labeling and Storing Items

**Education**
- Train staff
- Educate Logistics partners
  - Benefits
  - Procedure
Step 7: Implementation

Implementation

1. Use your Reusables
2. Tracking Assets
3. Measuring
4. System Cost Improvement & Redesign
5. Retraining & Reinforcement
More Details: Financing & Asset Tracking Options
Financing Options

**OWNERSHIP**
- Purchase (Cash)
- Financing/Capital Lease

**THIRD PARTY**
- Rental/Operating Lease
- Pooling (rental w/ services)

*or*
What Makes the Most Sense?

<table>
<thead>
<tr>
<th>Ownership Options</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Purchase (cash)</td>
<td>• No financing cost</td>
<td>• Lost opportunity costs</td>
</tr>
<tr>
<td></td>
<td>• No long-term liability</td>
<td>• Burdens of ownership</td>
</tr>
<tr>
<td>➢ Financing/Capital Lease</td>
<td>• Increased cash flow</td>
<td>• Long-term liability commitment</td>
</tr>
<tr>
<td></td>
<td>• Lower interest rates</td>
<td>• Utilizes available credit facilities</td>
</tr>
<tr>
<td></td>
<td>• Typically longer term financing</td>
<td>• Burden of ownership</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Party Options</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Rental (&lt;1 yr)</td>
<td>• Variable costing</td>
<td>• Higher costs</td>
</tr>
<tr>
<td>➢ Operating Lease</td>
<td>• No burdens of ownership</td>
<td>• No asset ownership</td>
</tr>
<tr>
<td></td>
<td>• Higher utilization</td>
<td></td>
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<tr>
<td></td>
<td>• Off balance sheet financing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Greater flexibility</td>
<td></td>
</tr>
<tr>
<td>➢ Pooling (rental w/services)</td>
<td>• Pay for what you use</td>
<td>• Duplicates in-house capabilities</td>
</tr>
<tr>
<td></td>
<td>• Off balance sheet</td>
<td>• Potential ancillary charges</td>
</tr>
<tr>
<td></td>
<td>• No capital up-front</td>
<td></td>
</tr>
</tbody>
</table>
Asset Tracking Options
Tracking: If you can’t measure it, You can’t manage it…
What Makes Dollars and Sense?

Aggregate Tracking

Individual Tracking

Barcode

RFID
## Aggregate vs. Individual Tracking

<table>
<thead>
<tr>
<th>SYSTEM TYPE</th>
<th>ASSET ID</th>
<th>ACCURACY</th>
<th>IMPLEMENTATION/ DIFFICULTY</th>
<th>SOLUTION COST</th>
<th>ADDITIONAL HARDWARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate Asset Tracking</td>
<td>Visual label None</td>
<td>Medium</td>
<td>Shorter/Easy</td>
<td>Low - Medium</td>
<td>None</td>
</tr>
<tr>
<td>Individual Asset Tracking</td>
<td>Barcode Passive RFID Active RFID GPS</td>
<td>High</td>
<td>Longer/Intermediate</td>
<td>Medium - High</td>
<td>Scanners (laser/RFID)</td>
</tr>
</tbody>
</table>
More Resources for You
More Information

Visit the Use Reusables StopWaste.Org educational website at UseResuables.com

- Download Free Case Studies
- Read Articles
- Watch Short Videos
- Use the Cost Comparison Calculator
Next Steps

• After the training consider Reusables
• Complete Information Request Form
• We work together to find solutions for your supply chain
• Become a model case study

STOPWASTE.ORG
Reducing the Waste Stream for Alameda County

REUSABLE PACKAGING ASSOCIATION
Panel Discussion

Emerging Trends in Reusables

Moderated by Justine Burt, Use Reusables Team Member
Welcome

Doug Heywood – Owens & Minor
Supply Logistics Partner for Stanford University Medical Center

Dean Mayes – Finelite
Director of Manufacturing

Nancy Parmer – UPS
Senior Director of Sustainability