



WASTE MANAGEMENT STRATEGIES

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DISCOVER | DEVELOP | DELIVER

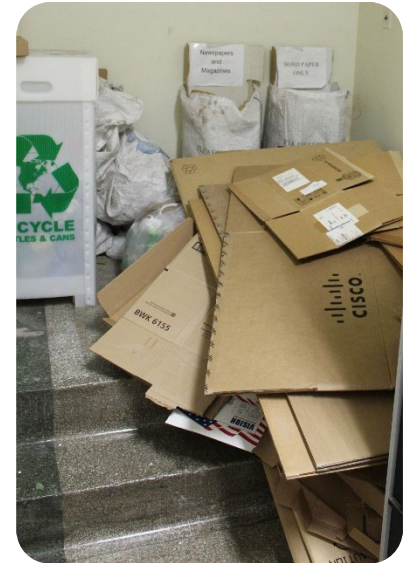
Why Waste?

There is value and potential in materials being landfilled.

Drivers

Federal & DoD waste mandates:

- **40 CFR 246-200** Mandatory separation & recycling of:
 - ▶ high-grade paper at offices of >100 workers
 - ▶ Cardboard at installations that generate > 10 tons/month
- **DoD Instruction 4715.23**
 - ▶ Integrated Solid Waste Management
- **14-day sustainability requirement** for Installation resilience



Hierarchy of Waste Alternatives

- **Reduction**
 - ▶ Eliminate packaging, use bulk dispensers, recycled/recyclable content, take-back policies
 - ▶ Improve procurement
- **Re-Purpose & Re-use**
 - ▶ Treat waste as a 'product' with other uses
 - ▶ Edible food, furniture, office supplies, deconstructed building components, etc.
- **Recycling and Composting**
 - ▶ Target major waste streams & those with 'commodity value'
 - ▶ Organics and food waste
- **Energy recovery**
 - ▶ After avoidance & diversion
- **Landfill is a last resort**

Resources:

- Sustainable Design and Development Policy
- Food Donations Policy
- Qualified Recycling Programs
- Technology Demonstrations



Areas of Opportunity

Integrated Recycling & Solid Waste Management Plans

- Waste Characterizations
- Qualified Recycling Programs (QRPs)
 - ▶ Recommendations for improvements
 - ▶ Market studies



Waste Diversion Technologies

- Feasibility Studies
- Demonstration and validation

Pollution Prevention

- P2 Plans, Opportunity Assessments
- Spill Prevention and Countermeasures Plans

Fixed Installations & Contingency Operations

- Waste to Energy
- Landfill Manual

Program and Policy Guidance Documents

Training



Waste Characterization Studies

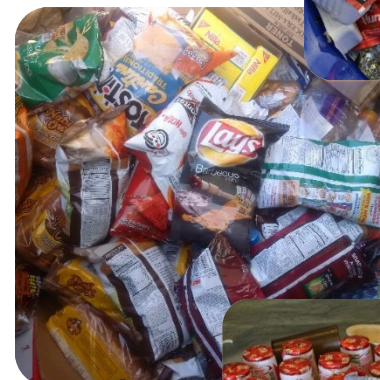
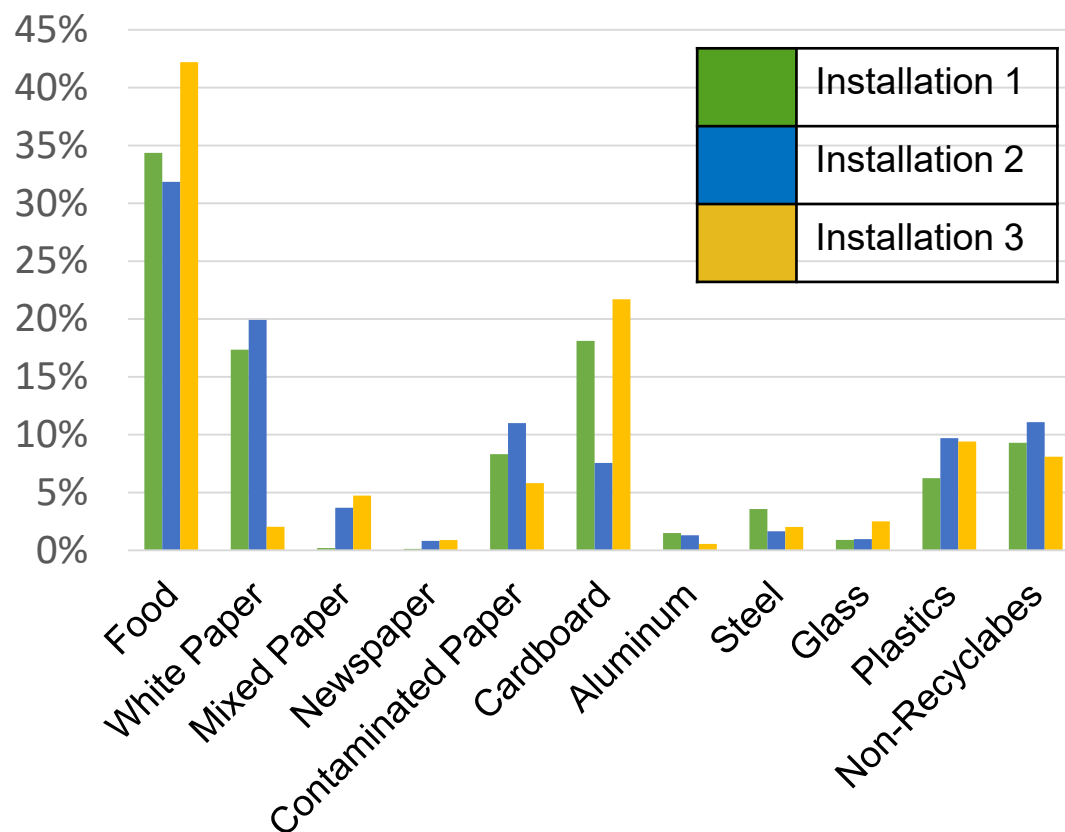
Objectives

- ***Develop waste generation trends***
 - ▶ Understand the operation of buildings at the installation
- ***Quantify and characterize waste***
 - ▶ Generated in the representative buildings
 - ▶ Waste categories
- ***Create estimates***
 - ▶ Waste generation and distribution
 - ▶ Using data obtained and installation building inventory
- ***Find alternatives for waste diversion***
 - ▶ Based on data



Data Trends

Waste Types Found - % Distribution



Informed Recommendations

Information from:

- Waste characterizations
- Installation
- Regulatory requirements

Work to provide:

- Findings
- Recommendations
- Cost Analyses
- Action Items



Recommendations are unique to each installation's needs and mission

Source Reduction

Drivers behind the initiative:

- \$150M+ per year in disposal fees
- Source reduction emphasized, but not prioritized
- Recycling alone insufficient in reducing disposal costs
- Multi-tiered approach necessary, placing emphasis on source reduction advances

Considerations:

- Accessibility
- Signage
- Space
- Purchasing



Case Study: Army Dining Facilities

Analyze:

- Procurement procedures
- Waste reduction initiatives
- Design and layout of physical space
- Waste handling
- Other relevant plans and practices



Design and Implementation

