High Performing Schools Moving Toward Zero Waste

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BSA K-12 Meeting, 4/28/16, NEEP NE-CHPS Training 4/21/16

Overview

- Why Schools Care about Recycling?
- Recycling Flows –
  - Classroom
  - Cafeteria
  - Loading Dock
- Designing a Zero Waste School, Where Sustainable Design Meets Sustainable Practice
  - Flexibility
  - Parallel Access to Recycling
  - Mobility

Why Do We Recycle?

- Educational value
  - Teaching by Doing
  - Project-Based Learning opportunity

Why Do We Recycle?

- **State Waste Bans - DO apply to schools!**
  - "As generators of solid waste, municipalities need to ensure that banned materials are separated from trash at their municipal offices and facilities, **including schools**, town halls, and parks departments."
  - www.mass.gov/eea/docs/dep/recycle/solid/wbanmuni.pdf
- **Good Citizenship**
  - Schools also need to follow the Rules!

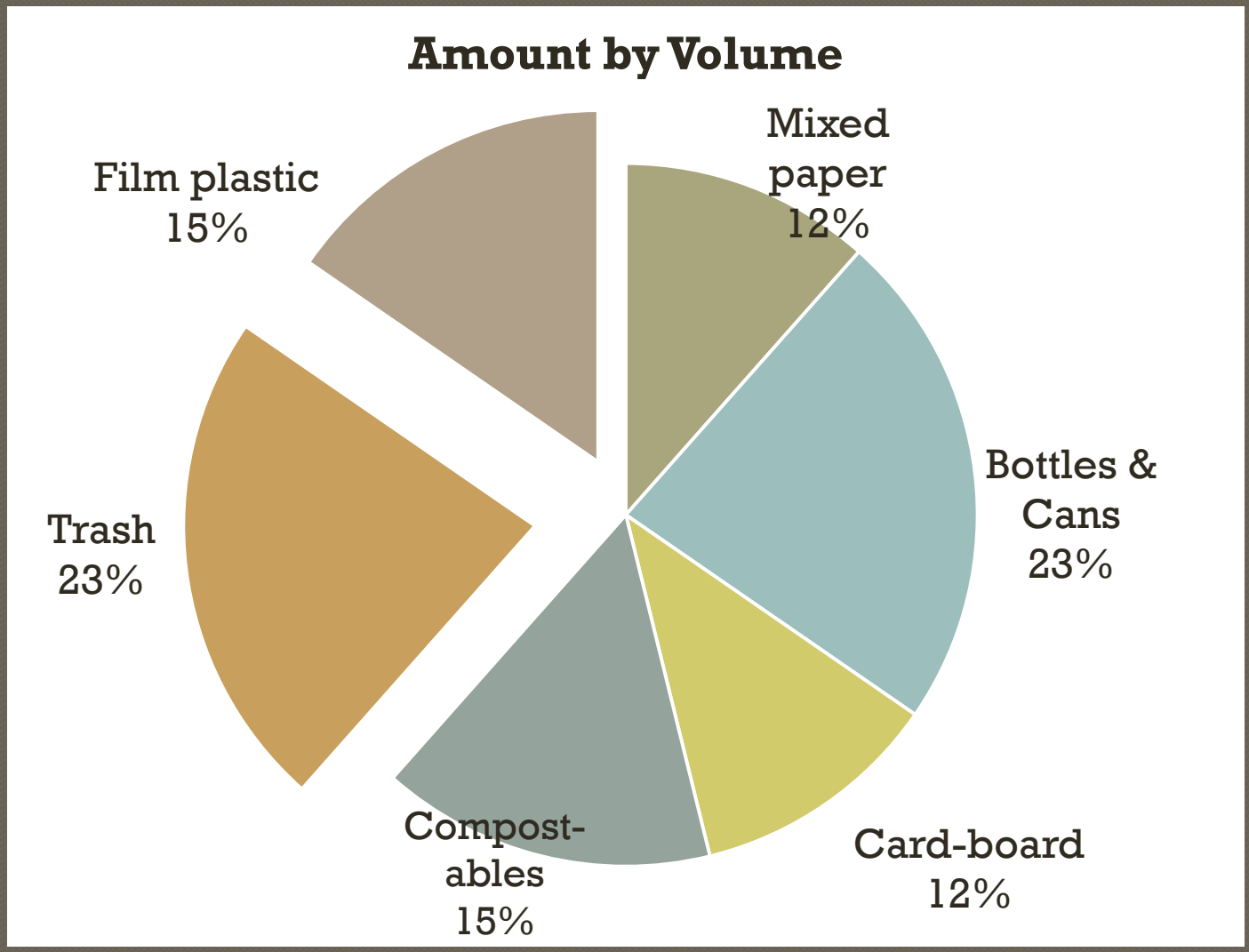
Why Do We Recycle?

- Savings:
  - Less trash
  - Fewer pickups
  - Smaller dumpsters

Why Do We Recycle?

- It is about **more than money!**
  - Better use of natural resources
  - Saves energy
  - Reduces GHGs

What's in a School's Waste?: Only 23% was actually trash!



Classroom Recycling

- Paper and Bottles/Cans
  - SSR or DS?
- "Parallel Access" = Located adjacent to each other

- Other Best Practices:
  - Consistent color-coding
  - Well-labeled
  - Consider space for organics

Recycling in Common Areas

- Parallel Access
- Mobile
- Flexible – DS or SSR
- Great Signage

Consolidation Points

Design for mobility without impeding hall traffic

Recommendations for Classrooms and Common Areas

- Classrooms:
  - Parallel access = recycling + trash at same spot
  - Flexibility: Options for recycling containers
- Hallways and Common areas
  - Mobility: Places for storing, consolidating
- Great Signage

Let's Talk about Cafeterias

- Kitchen/Prep Area

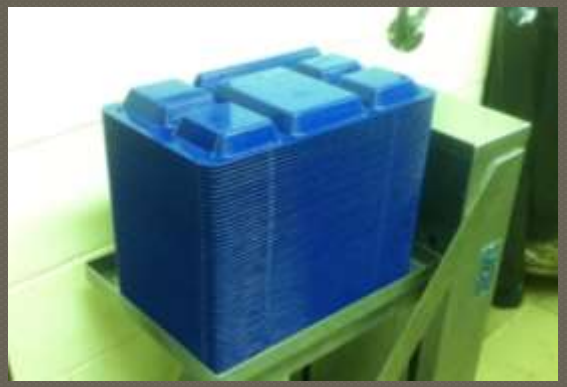
- Dining Area

Kitchen/Food Prep Design Needs

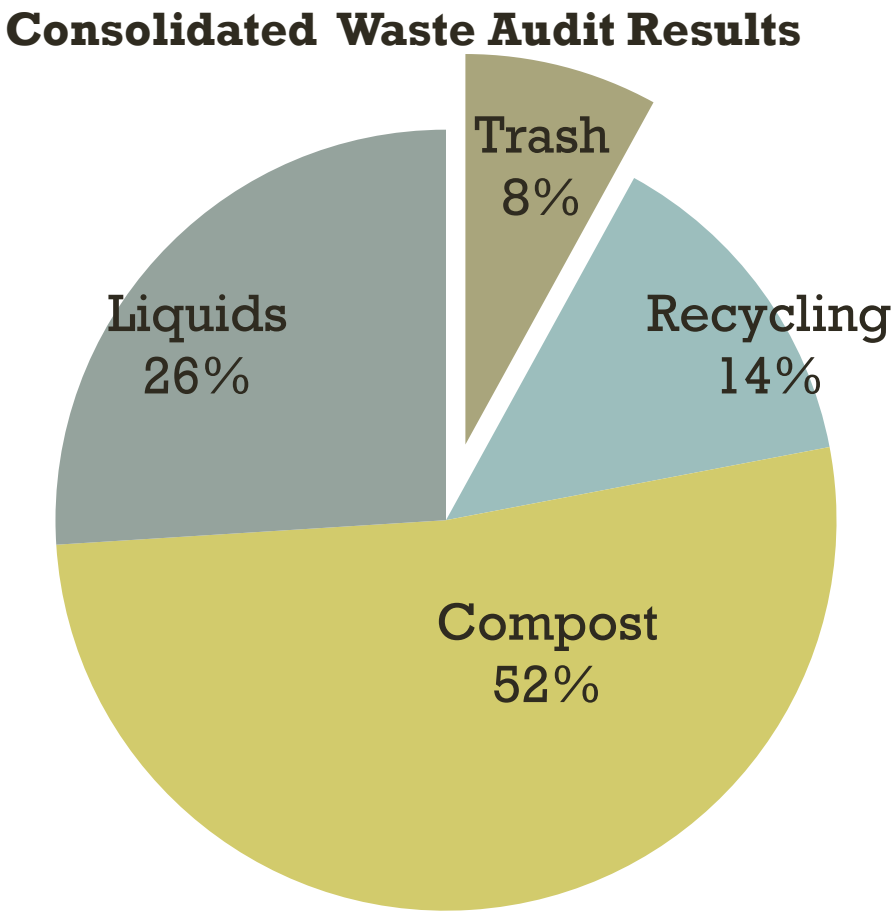
- Space to collect, store and move:
  - Cardboard
  - Food cans and plastic containers
  - Food waste – prep, leftovers
- Dish machine
- Can Crusher

Myth Busting re Reusable Trays

- Dish machines = BEST way to reduce waste
- Framingham retrofit 3 schools
  - **NO** added labor cost
  - Reduced trash 50%
  - Saved ~ $2000/year
    - 400 foam trays/day for 180 days at $0.03 each =$2160/yr
    - 400 reusable trays at $4.00/tray used 15 yrs= $106/yr



Dining Areas: How Much Can Be Recycled? All but 8% in Beverly!

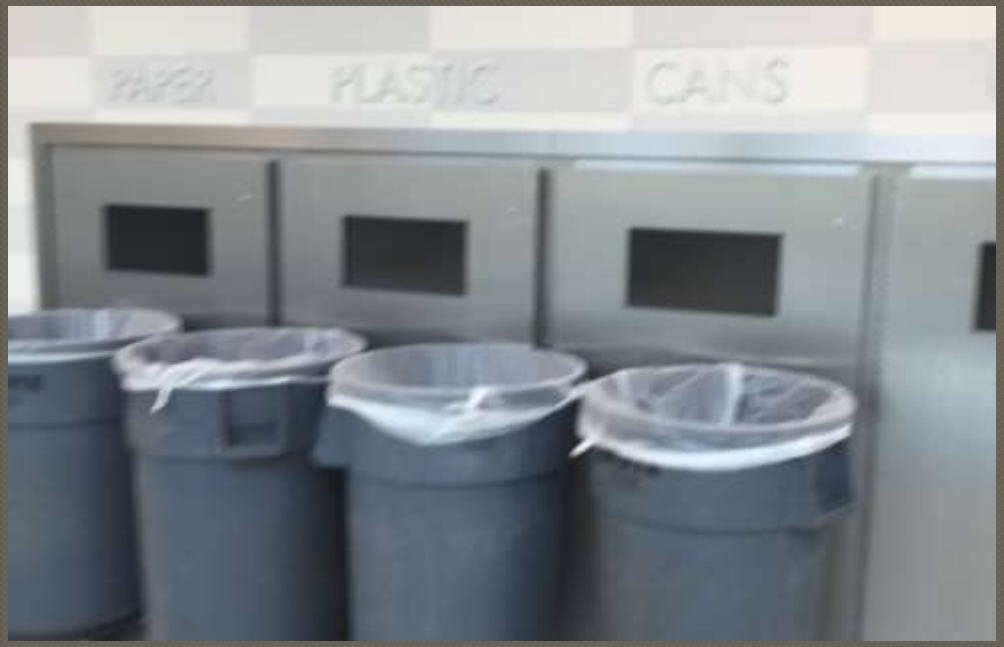


Common Problem – "Recycling Centers"

- Dead end
- Wrong place
- Wrong size for barrels

- Needs to fit 150 students in ~5minutes

Common Problems – "Recycling Centers"



- Enclosed space
- All doors look same
- All labels hard to read
- No distinct colors, no difference in openings
- Inflexible
- Not moveable
- Wrong location for student lunch traffic
- Wrong size doors for barrels

Design To Drain Liquids, Rinse

- Collection Point

- Disposal/cleaning

To Recycle Cartons/Bottles

- Inside collection point
- And, Outside Storage

To Divert Food Waste

- Inside Collection

- And, Outside Storage

Custodian's View

- Liquids pour-off makes cafeteria trash easier, cleaner
- Food waste separation more work but makes trash lighter and students can help oversee.

Why Mobility Matters

In Sum, Design For:

- Parallel access
- Mobility
  - on dollies
- Flexibility
  - Easy to connect and disconnect Easy to add more
- Good signage at eye level

Additional Recommendations For Cafeterias

- Design for waste reduction –
  - Dish machines
  - Can crushers
  - Cardboard storage
  - Indoor recycling storage

- Design for Custodian, i.e., easy access to:
  - Drain/slop sink
  - Barrel rinsing equipment
  - Interior barrel storage area
  - Exterior grade-level storage for truck pickup

The Loading Dock
Where It All Comes Together

- Common Problems
  - Non-functional Outside space
  - Inadequate Inside space
  - Inability to adapt to future program
- Examples of good design
- Recommendations
  - Parallel Access
  - Flexibility, Adaptability
  - Mobility

Common Problem – No Ramps, Fences Blocking Dumpsters

No Ramps, Dumpsters Too Far Away

Dumpsters Out of the Way and Often Buried In Winter Snow

Awkward Access to Compactors

- Too far away from platform
- Sometimes openings too low

Design for Mobility, Flexibility

- Flexibility = add carts as needed
- Mobility = access to ground level

Include Indoor Storage (Staging Area)

- What: Cardboard, bottles/cans, food waste
- Why: 95-gal carts need indoor storage until pick-up:
  - Protects from weather
  - Prevents litter, vandalism, addition of neighborhood trash
- Space to flatten cardboard

Details Matter: Distance to Dock, Height of Openings

Recommendations for the Loading Dock

- Loading dock with space for:
  - 1) SSRecycling dumpster or compactor
  - 2) Cardboard dumpster or 2nd dumpster (if DS)
  - 3) Trash dumpster (smaller), and
  - 4) A ramp for carts to roll to grade level
  - No fences/rails/enclosures blocking dumpsters
- Indoor storage areas
  - Cardboard breakdown and storage – e.g., tilt truck
  - Space to store wheeled carts inside or access the compactor

Help and Helpers Are Available

- Green Team, www.TheGreenTeam.org
  - Equipment, advice, teaching resources
- Municipal Assistance Coordinators :
  - WE: Arlene Miller, Arlenem773@aol.com
  - CE: Irene Congdon,Irene_congdon1@yahoo.com
  - SE1: TBD
  - SE2: Kathi Mirza, KMirza@taunton-ma.gov
  - NE2: Sharon Byrne Kishida, Kishida@beverlyma.gov
  - NE3: Carolyn Dann, CDann@bedfordma.gov
  - Cape: Dave Quinn, DQuinn@barnstablecounty.org
  - Boston area: Dawn Quirk, Dawn.Quirk@state.ma.us

Reflecting Our Values!

- The schools of the future should generate more recyclable and compostable material than trash.
- Maybe NO trash at all!
- Can you help us get there?
- THANK YOU!


FOOD
Compost
ALL FOOD
Bottles &
Cans:
Empties
BOTTLES & CANS
Bottles &
Cans:
Empties