

Washington Headquarters Services Engineering & Technical Services Division

***“RECYCLE TODAY. TOMORROW
DEPENDS ON IT”***

Pentagon Recycling Program

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Pentagon Recycling Program

Pentagon Facts & Figures

- **Over 6.5 million SF gross floor area**
- **Nearly 4 million SF net area offices, storage, concessions**
- **17.5 miles of corridors**
- **7,754 windows**
- **23,000 employees**
- **276 acres footprint**



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Pentagon Facts & Figures

- 112,000 lbs. per year of McDonald's french fries consumed
- 424,000 McDonald's hamburgers consumed per year
- Dunkin Donuts – 130,000 bagels, 730,000 donuts per year
- 4,500 cups of Starbucks coffee served daily



Pentagon Recycling Program

OVERVIEW

- Why we Recycle
- Pentagon Recyclable Materials
- Performance Measurements
- Program Goals/Objectives
- Initiatives
- Lessons Learned

"Recycle Today. Tomorrow depends on it."



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Why We Recycle

➤ Executive Order 13423 (2007) - “Strengthening Federal Environmental, Energy, and Transportation Management”:

....instructs Federal agencies to conduct their environmental, transportation, and energy-related activitiesin an environmentally, economically and fiscally sound, integrated, continuously improving, efficient and sustainable manner.



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Why We Recycle

LEED for New Construction Rating System

Materials and Resources Prerequisite: Storage & Collection of Recyclables (version 2.2)

- Provide an easily accessible, dedicated area that serves the entire building
- Coordinate the size and functionality of the recycling area with the anticipated collection
- Consider employing cardboard balers.....



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Why We Recycle

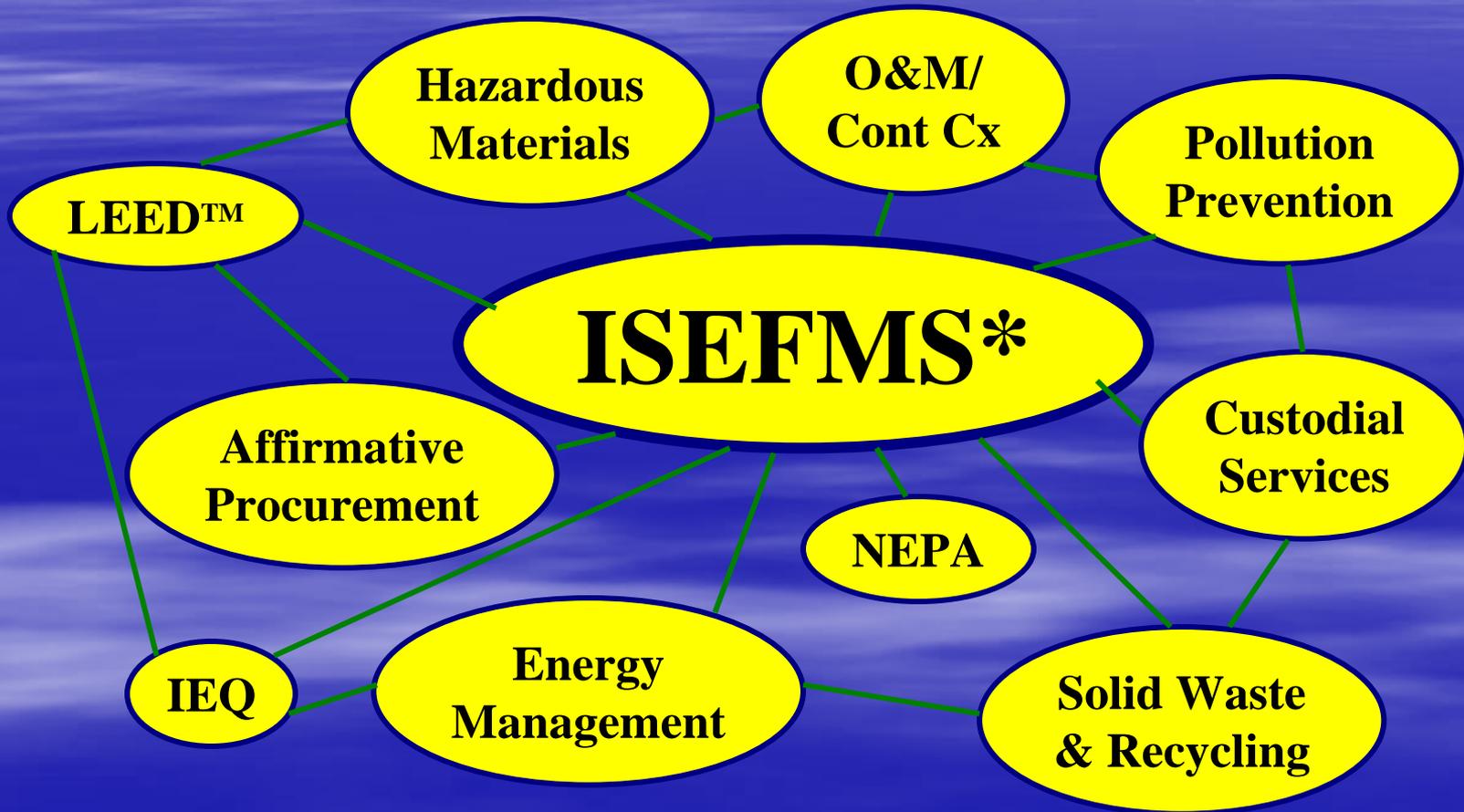
- **Good Stewardship –**
 - smaller ecological footprint
 - conserve natural resources, energy
- **Good Citizenship**
 - choose to recycle, reduce dependence on landfills
- **Good Business**
 - Integrated solid waste management,
 - cost avoidance

“Right Thing to Do”



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ISEFMS Interrelationships Associated with Recycling



* Not all relationships are shown for 40+ Safety, Environmental and Fire Prevention programs

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Proceeds from Recyclables

	2008	2005
White paper	\$125	\$140
Mixed paper	\$25	\$25
Newsprint	\$25	\$35
Cardboard	\$25	\$40
Aluminum	\$400	\$500
Glass	n/a	n/a
Plastic	n/a	n/a
Wood Pallets	n/a	n/a



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Cost Savings and Avoidance

- Proceeds from the sale of recyclable materials
 - > \$33K/year
- Savings through elimination of solid waste hauling fees
 - > \$43,000/year
- Savings through elimination of landfill dumping fees
 - > \$49,000/year
- Total cost avoidance: >\$92,000/year



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Paper	white paper mixed paper newspaper cardboard Books
Metals	Aluminum cans Scrap metals
Glass	Mixed glass
Plastic	#1 PETE #2 HDPE
Other	fluorescent bulbs yard wastes toner cartridges wood pallets C&D debris Batteries



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Public space bins for newspaper, plastic, glass



White paper recycling bins



Legacy space bins



Desk side white paper bin



Bins in food service locations



Mixed paper bin

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Pentagon Recycling Statistics

In 2007, Pentagon recycled enough paper to save:

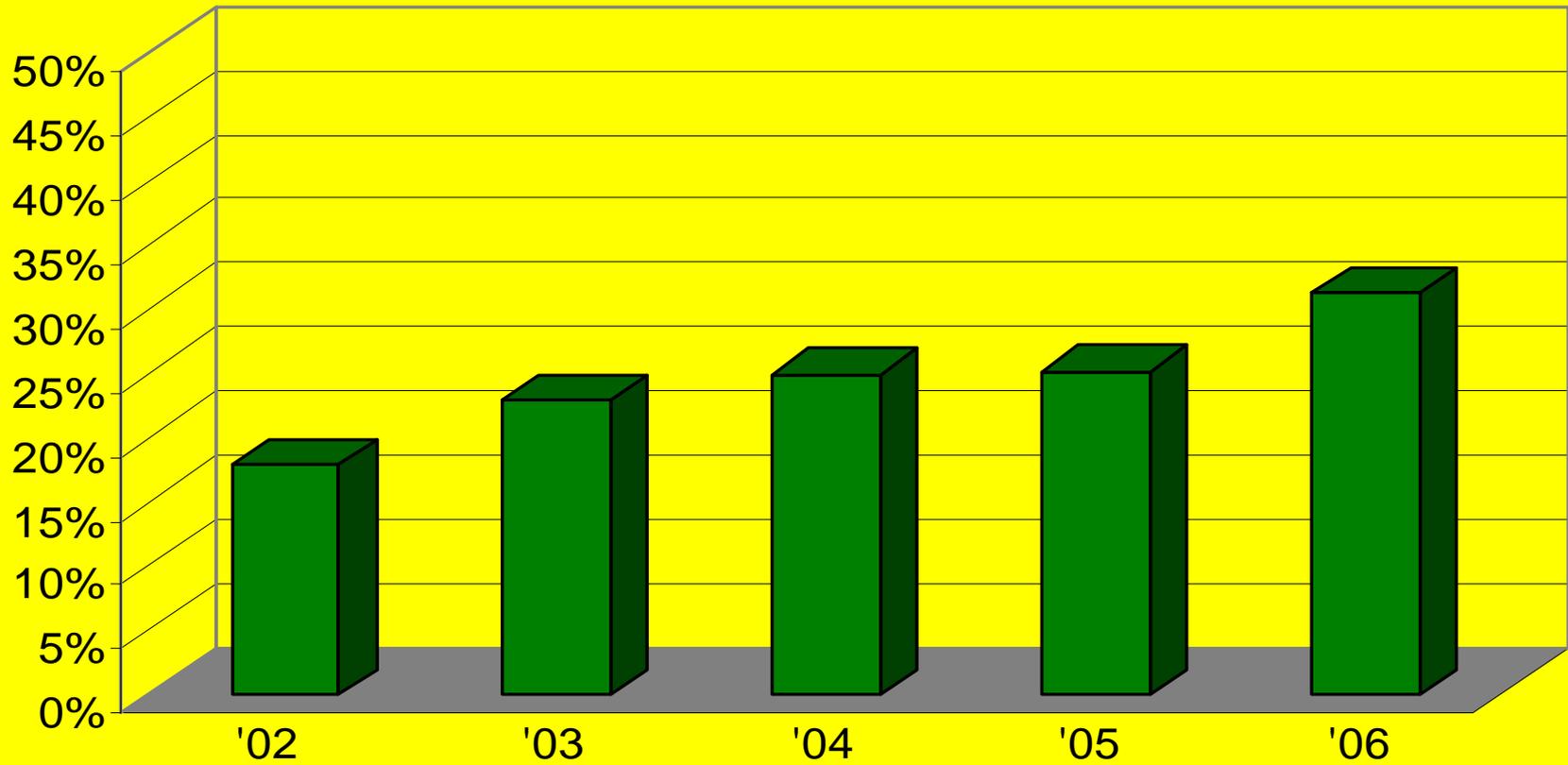
- 1,398 cubic yards of landfill space
- 7,769 trees
- 211,591 gallons of oil
- 268,259 pounds of air pollution
- 1,863,189 kilowatt hours of energy
- 3,177,521 gallons of water



"Recycle Today. Tomorrow depends on it."

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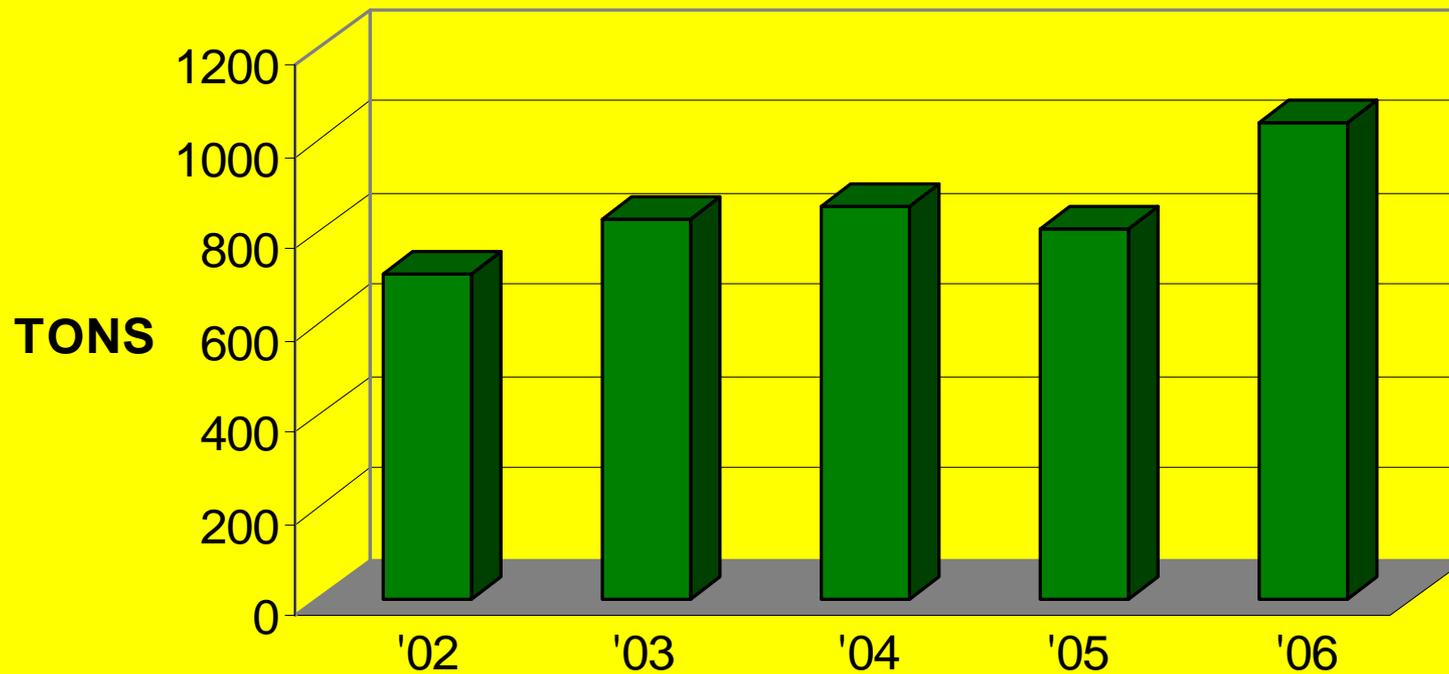
Recycling rates are up



Recycling rates improved from 18% in 2002 to 31% in 2006

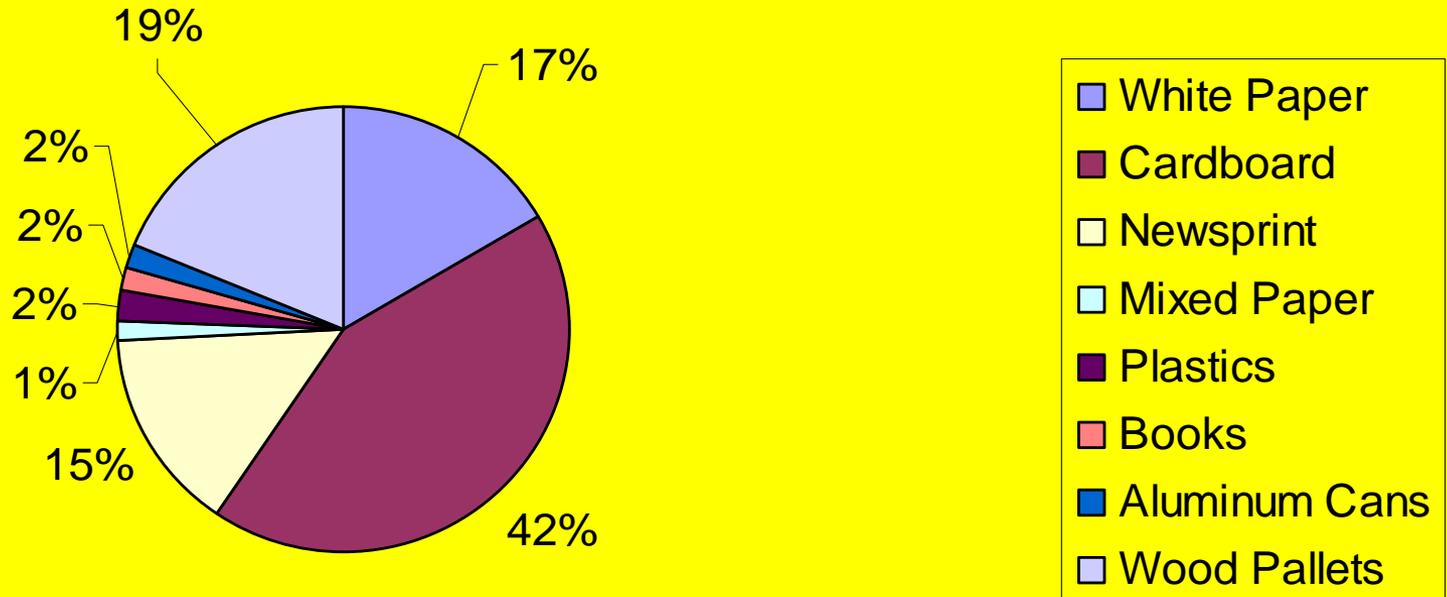
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Tons of recyclable materials diverted from the waste stream are up



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Composition of Principle Recyclable Materials 2007



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Hazardous Materials Recycled - 2007

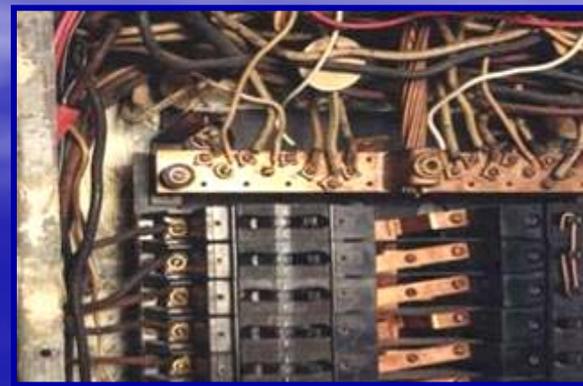
- Fluorescent lamps – 13,814 lbs.
- Lead-acid batteries – 21,396 lbs.
- Alkaline batteries – 26 lbs.
- Lithium batteries – 153 lbs.
- Nickel-cadmium batteries – 61 lbs.
- Non-PCB ballasts – 703 lbs.
- Latex paint – 2700 lbs.



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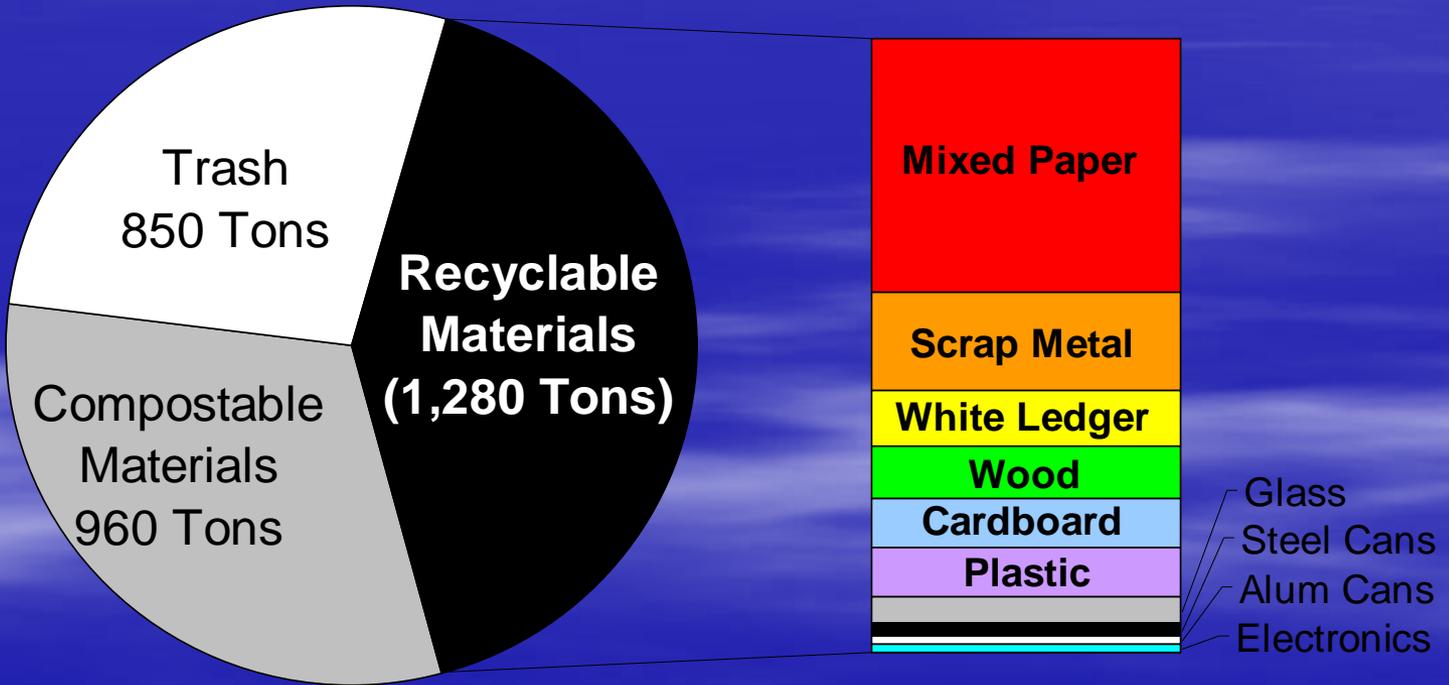
Construction Demolition Wastes recycled:

- Concrete wastes
- Metals
- Masonry wastes
- Sheet rock
- Asphalt
- 64% of the entire waste stream recycled



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What's in the Pentagon's Trash?



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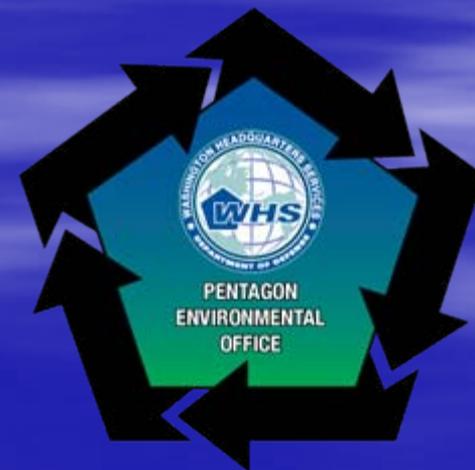
GOALS & OBJECTIVES	PERFORMANCE INDICATOR	STATUS
50% Recycling Rate by 2010	<ul style="list-style-type: none"> ➤ % of solid waste diverted ➤ increased # of materials 	<ul style="list-style-type: none"> ➤ 27% (year 2007) ➤ 15 materials collected
Waste Sort	Waste sort findings	Sort completed
Program Improvements	Office waste sorts, annual audits, bins strategy plan...	Developing contracting requirements for tasks
Continue outreach/education activities to promote recycling	<ul style="list-style-type: none"> ➤ New outreach activities implemented ➤ recycle coordinators engaged 	<ul style="list-style-type: none"> ➤ Slogan contest completed ➤ Agency Recycle coordinators (RC) identified ➤ RC Work group meetings ➤ Website develop
50% Construction Demolition Debris Recycling	% of C/D diverted from landfill	67% Entire waste stream recycled - Wedge 4
Composting of food wastes	% of food wastes diverted	Discussing pilot project with DoD Concessions
Integrate recycling responsibilities into green housekeeping contracts	Quality Assurance Surveillance Plan inspection results	Current contract requirement

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Pentagon Waste Sort

- **Baseline**
- **Contract support**
- **Two season sort: winter and summer**
- **LEED credits**



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Baler

- More efficient handling of materials
- Mill ready bundles
- Assists with achieving LEED credits



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Initiatives

Pentagon custodial contractors support the recycling program:

- **Green cleaning**
- **Energy and water efficient products**
- **Bio-based products**
- **Green Seal Product Standards**
- **Requires purchase and use of recycled content**
- **Management and Environmental Stewardship Plan**
- **Waste Minimization and Recycling Plan (WMRP)**

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Chemical Command Centers:

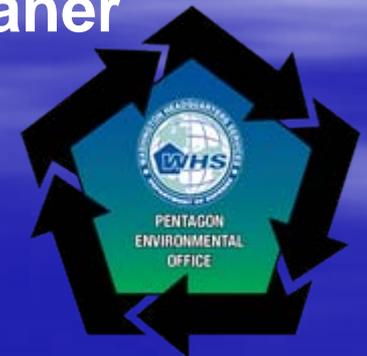
- Reduces plastic wastes through reuse of containers
- Reduces liquid wastes through automated dispensing
- Safer handling of chemicals
- Concentrated chemicals reduce WHS shipping costs



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Initiatives

- **Pentagon Renovation Construction Program Office**
 - **Construction & demolition recycling divert a minimum of 50% of all recyclable materials**
- **Sustainability workgroups**
 - **pilot projects to assist in obtaining LEED credits**
 - **emerging technologies – conservation of resources**
 - **biobased products- cafeteria, carpet cleaner**
 - **rubber tire pad and sidewalk projects**



"Recycle Today. Tomorrow depends on it."

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Initiatives (Cont'd)

Education and Outreach

- Earth Day Activities
- America Recycles Day
- Building Circulars
- Recycle Slogan Contest
- InfoNet
- Develop Pentagon Green Team
- Recycling Handbook
- Website
- Publish Articles,
- Closing the Circle
- Children's art contest



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Lessons Learned

- **Continuous improvement is good**
- **Integrate recycling**
- **Reports – standardize, compile, report**
- **Need recycling coordinators**
- **Building management funding**
- **Monitor your collection sites**



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Conclusion:

- **Why do we recycle?**
 - *Executive Orders*
 - *Good Choices - Stewardship, Citizenship, and Business*
 - ***It's the right thing to do***
- **Pentagon Recyclable Materials**
 - *15 Primary and special Items, haz mat, C&D*
- **Performance Metrics**
 - *Proceeds from the sale of recyclables*
 - *Cost avoidance of > \$92,000 per year*



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Conclusion (Cont'd)

- **Program Goals**
 - **Continuous improvement and Buy recycled products**
 - **Ongoing employee education**
 - **Agency participation on Pentagon Green Team**
- **Initiatives**
 - **Baler**
 - **Renovation**
 - **Green cleaning**
 - **Pilot studies – biobased products**
 - **Employee Education**



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Questions?

Thank You

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