

Flying Towards Sustainability with the Mitsubishi JetTowel

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Introduction

▶ Problem

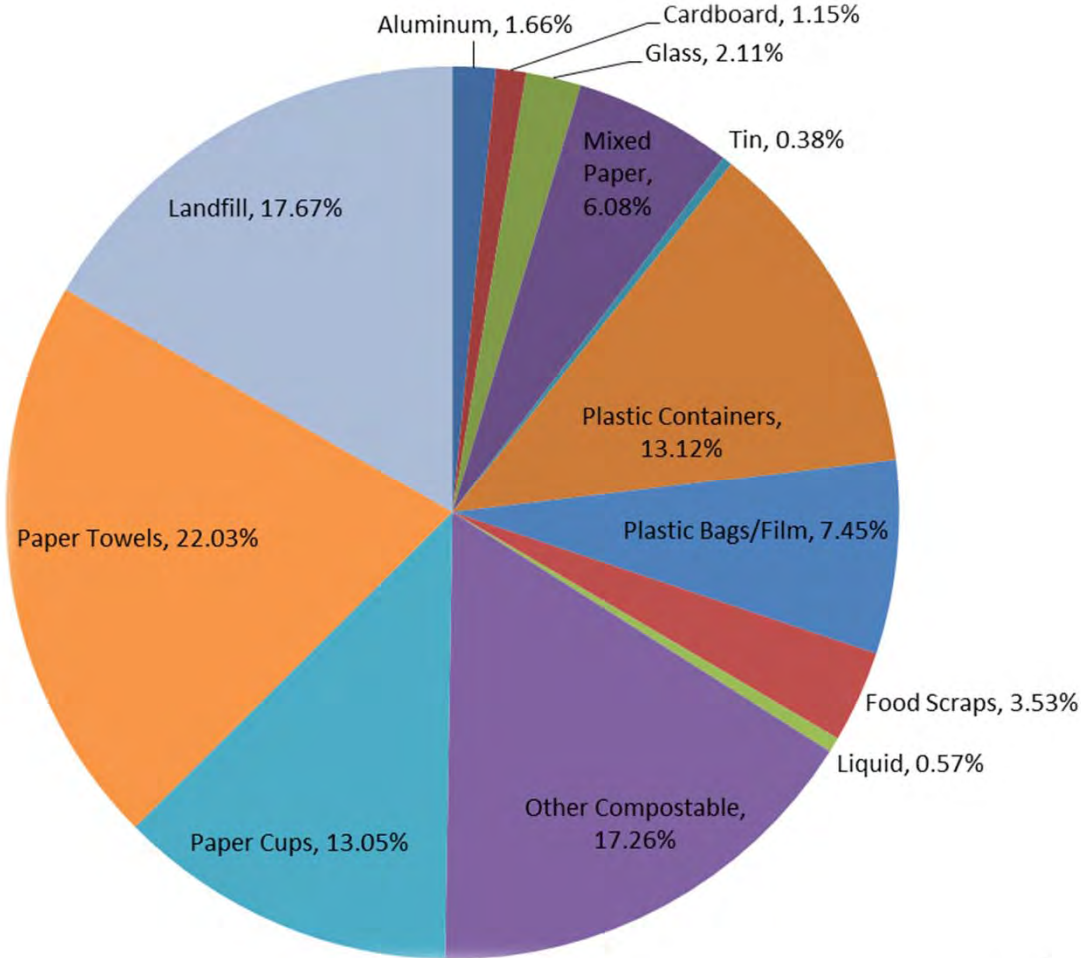
- ▶ Many buildings on Western's campus produce a large amount of paper towel waste that contributes to WWU's waste stream and carbon footprint.

▶ Solution

- ▶ Replace the existing paper towel dispensers with highly efficient hand dryers where it is cost-effective.



Waste Audit Data



Overview of Past Pilot Projects

- ▶ Paper Towel Composting in Haggard Hall
- ▶ Dyson AirBlades in Arntzen Hall Concourse
- ▶ Veltia and Mitsubishi hand dryers in Miller Hall

Hand Dryer Comparison



Dyson AirBlade



Veltia Hand Dryer



Mitsubishi JetTowel

Composting on Campus

Problems

- ▶ Expensive bags, increased labor, transport costs
- ▶ Does not reduce waste stream
- ▶ Not feasible on a large scale or in high capacity bathrooms

Future

- ▶ Option for composting in low use bathrooms



“But what about...”

- ▶ Hygiene/sanitation
- ▶ Opening the bathroom door
- ▶ Spill cleanup
- ▶ Hand dryer noise
- ▶ High upfront cost



Methods

- ▶ Bathroom Inventory
 - ▶ Based on paper towel waste by volume and whether or not hand dryers currently exist in bathrooms.
 - ▶ High/Medium/Low use bathrooms
- ▶ Interviews with custodians and stakeholders
- ▶ 5 year implementation plan

	# HIGH	# Medium	#LOW
Environmental Studies	2		10
Arntzen Hall		6	2
ETEC	4		
Fine Arts		4	
Old Main		6	6
Humanities	2	2	2
Wilson Library	6		
Haggard Hall	4	2	
Bond Hall		8	
Parks Hall		6	

Hand Dryer Cost Estimates

► Breakdown of Hand Dryer Costs

- 1 unit ~ \$1,300 (retail)
- Rewiring ~ \$1,000
- Installation ~ \$300
- Total: \$2,600/unit

► Electricity Usage Costs (Medium Use - 200 uses/day)

- \$0.18/week
- \$0.75/month
- \$9.00/year

	# units to install	Cost
Environmental Studies	14	\$36,400
Arntzen Hall	8	\$20,800
ETEC	8	\$20,800
Fine Arts	4	\$10,400
Old Main	12	\$31,200
Humanities	8	\$20,800
Wilson Library	12	\$31,200
Haggard Hall	10	\$26,000
Bond Hall	8	\$20,800
Parks Hall	6	\$15,600

Paper Towel Costs

- ▶ Annual paper towel costs derived from Western's paper towel orders from July 1st, 2011 to June 30th, 2012 for the 800' Roll were \$48,530.

1 Hand dry	30" of Paper Towel			
1 800' Roll of Paper Towels	\$4.86			
Paper Towel cost/Hand dry	\$0.015			
Bathroom capacity	Uses/Day	Cost/Day	Cost/Week	Cost/Month
High use	300	\$4.50	\$22.50	\$90.00
Medium use	200	\$3.00	\$15.00	\$60.00
Low use	100	\$1.50	\$7.50	\$30.00

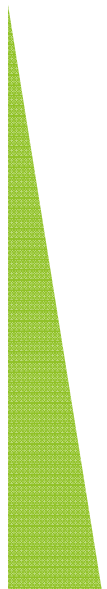
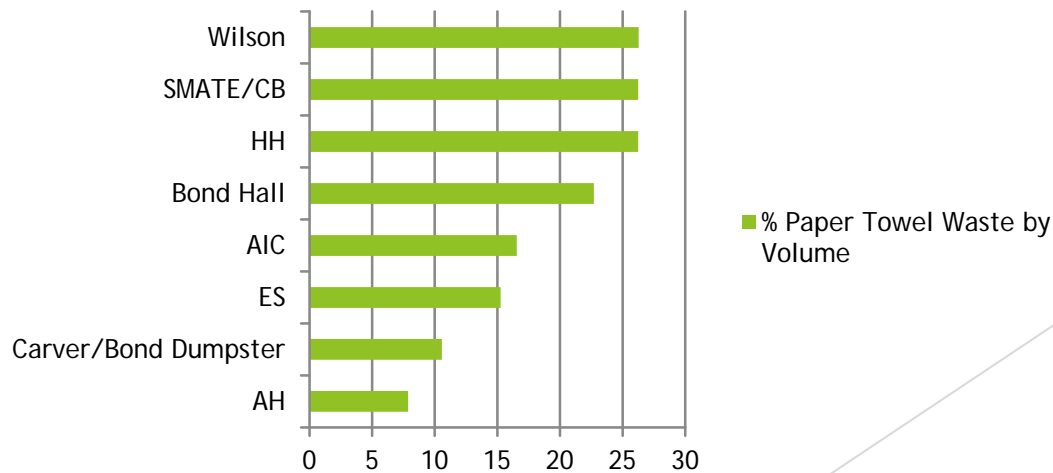
Estimated Current Paper Towel Costs

Bathroom capacity	Uses/Day	Cost/Day							
High use	300	\$4.50							
Medium use	200	\$3.00							
Low use	100	\$1.50							
Paper towel cost/use	\$0.015								
	# HIGH	# Medium	#LOW	Cost/Day	Cost/Week	Cost/Month	Cost/School Year	Summer	Whole Year
Environmental Studies	2		10	\$24.00	\$144.00	\$576.00	\$5,184.00	\$432	\$5,616
Arntzen Hall		6	2	\$21.00	\$126.00	\$504.00	\$4,536.00	\$378	\$4,914
ETEC	4			\$18.00	\$108.00	\$432.00	\$3,888.00	\$324	\$4,214
Fine Arts		4		\$12.00	\$72.00	\$288.00	\$2,592.00	\$216	\$2,808
Old Main		6	6	\$27.00	\$162.00	\$648.00	\$5,832.00	\$486	\$6,318
Humanities	2	2	2	\$18.00	\$108.00	\$432.00	\$3,888.00	\$324	\$4,214
Wilson Library	6			\$27.00	\$162.00	\$648.00	\$5,832.00	\$486	\$6,318
Haggard Hall	4	2		\$24.00	\$144.00	\$576.00	\$5,184.00	\$432	\$5,616
Bond Hall		8		\$24.00	\$144.00	\$576.00	\$5,184.00	\$432	\$5,616
Parks Hall		6		\$18.00	\$108.00	\$432.00	\$3,888.00	\$324	\$4,214
						Total:	\$46,008.00		\$49,848

Five Year Implementation Plan

Buildings	Total Cost
Environmental Studies & Parks Hall	\$52,000
Wilson Library & ETEC	\$52,000
Haggard Hall & Old Main	\$52,000
Arntzen Hall & Humanities	\$52,000
Bond Hall & Fine Arts	\$41,600
Average cost/year	\$49,920

% Paper Towel Waste by Volume



Funding Sources

- ▶ WWU and the Revolving Energy Loan Fund



Conclusion

- ▶ Past pilot projects on campus have provided sufficient information to begin transitioning toward high efficiency hand dryers to reduce overall landfill waste.
- ▶ Financial and environmental sustainability.
- ▶ Western's responsibility as a leader in sustainability.