

Construction and Demolition Waste Management for Skagit County

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Project Overview

- The problem
- Case Studies
- Solutions



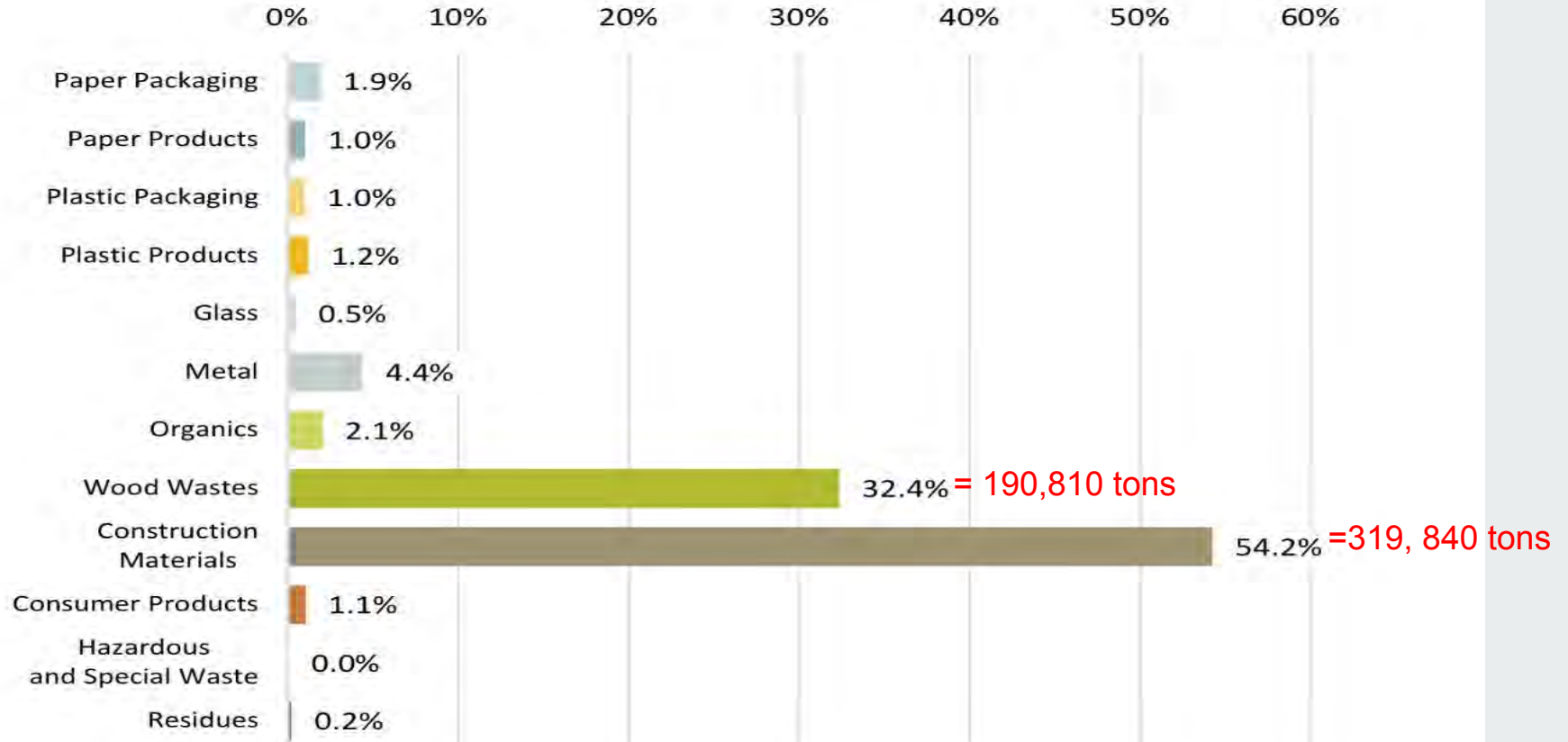
On average...

Residential → 2,400 ft.² home generates 5 tons of waste

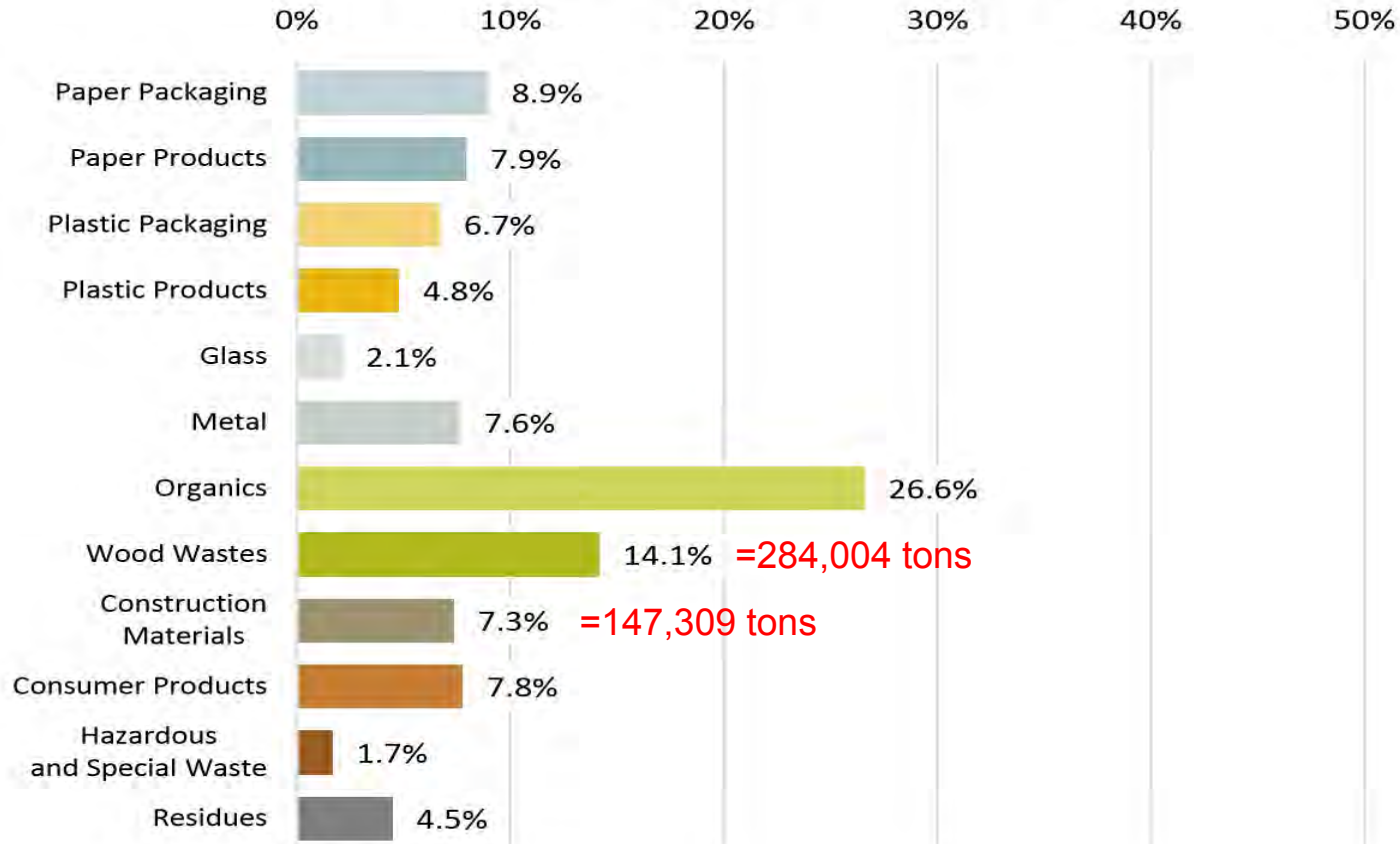
Commercial → 5,000 ft.²- 15,000 ft.² building generates 10.95- 32.85 tons of waste



**Figure 16: Self-hauled C&D Disposed Waste Sector
Composition by Material Class, 2015-2016**



**Figure 10: Commercial Disposed Waste Sector
Composition by Material Class, 2015-2016**





Skagit's Annual C&D Waste Waste Generation:

Wood wastes: 8,072 tons/ year

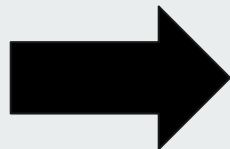
C&D waste: 7,941 tons/ year

Total: 16,013 tons/ year



CASE STUDIES





Solution 1

- Provide large, laminated signs to promote on-site sorting



H: 18 in
W: 24 in



Questions?
Call 360-416-1570

Yes

- ✓ Wood w/ nails, untreated
- ✓ Metal
- ✓ Concrete (under 2 ft)
- ✓ Rigid Plastics
- ✓ Asphalt (under 2 ft)
- ✓ Glass
- ✓ Masonry
- ✓ Drywall



No

- ✗ Sweepings
- ✗ Treated Wood
- ✗ Exterior Board
- ✗ Asbestos Insulation
- ✗ Furniture

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



WOOD

✓ NAILS

✓ UNTREATED

✗ PAINTED

✗ TREATED

ASPHALT <2 FT CHUNKS

CONCRETE <2 FT CHUNKS

DRYWALL

✓ CLEAN/UNPAINTED NEW
SCRAPS

✗ SWEEPINGS, EXTERIOR BOARD



Chicago



C&D RECYCLING WORKSHEET

STEP 1: Estimate the Total Project Waste, including all materials:

Size of Waste Containers (cubic yards)	Number of Waste Containers	Number of Containers Per Month	Total Waste Generated Per Month	Months of Project	Total Project Waste
cy	(x)	(x)	= cy	(x)	= cy

STEP 2: Estimate Amount of Recyclable Material:

Material	Commercial Construction Debris (by weight)	Residential Construction Debris (by weight)	Current Project Estimate (% volume)	Cubic Yards (multiply % volume from total project waste from Step 1)
A. Wood Waste			%	cy
B. Corrugated Cardboard			%	cy
C. Gypsum Drywall			%	cy
D. Scrap Metal			%	cy
E. Brick			%	cy
F. Stone			%	cy
G. Asphalt Grindings			%	cy
H. Recyclable Material			%	cy

STEP 3: Estimate Cost Effectiveness of Recycling:

Material	Cubic Yards (from Step 2)	Cost to Recycle (multiply by cubic yards)	Additional Costs (labor, sorting transportation)	Cost to Recycle (per cubic yard)

STEP 4: Calculate Net Benefit or Cost:

Material	Cubic Yards (from Step 2)	Multiply by Cost per Cubic Yard for Landfilling	Cost for Transportation Cost to Landfill	Subtract Cost to Recycle	Net Benefit of Cost to Recycle

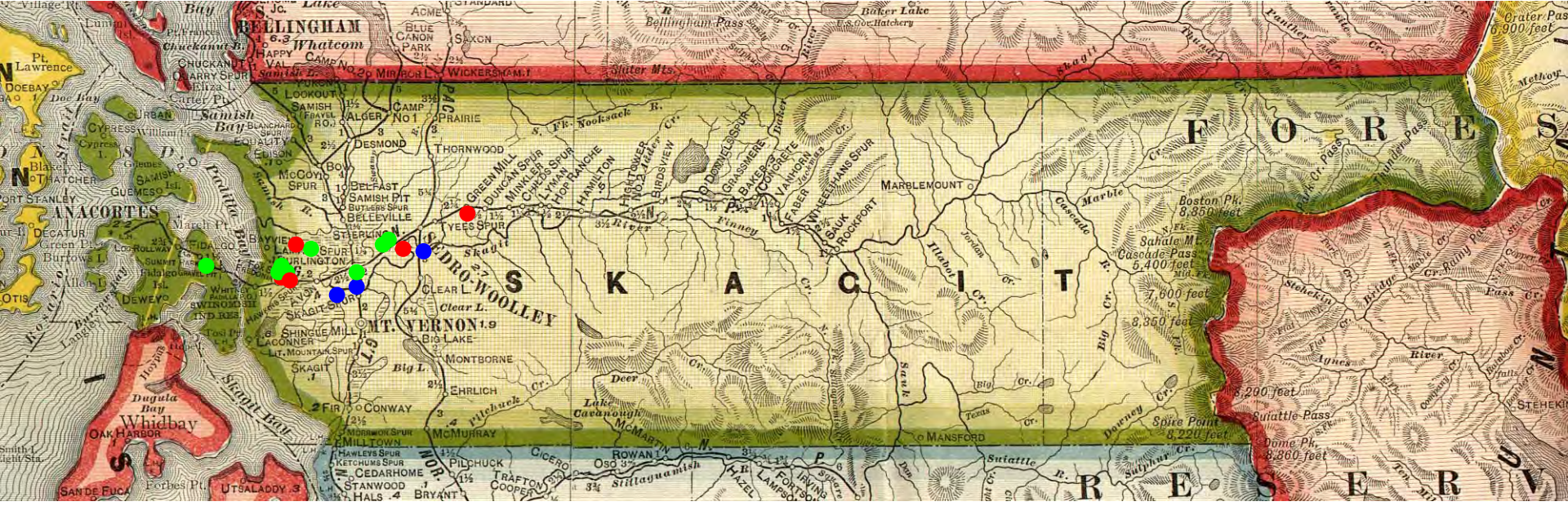
Solution 2


- Education provided through permitting process
 - Available resource services and locations
 - What can and cannot be recycled
 - Economic incentives available through discounts



Additional Resources

Recycling/Compost	Location	Disposal	Location
Rita Street Appliance	Sedro-Wooley	Clear Lake Compactor Site	Clear Lake
Skagit Appliance Recycling	Sedro Wooley	Sauk Transfer Station	Concrete
Skagit River Steel Recycling	Burlington	Skagit County Transfer Station	Mount Vernon
Lautenbach Industries	Mount Vernon	Skagit County HHW Facility	Mount Vernon
Pallet Services	Mount Vernon	Skagit County Small Quantity Generator	Mount Vernon
Skagit Soils	Mount Vernon	Reuse	Location
Sunland Bark & Topsoil	Anacortes	Skagit Building Salvage	Mount Vernon
Waste Management - Skagit	Burlington	Skagit Habitat for Humanity	Mount Vernon





Equipment, Material, Human Resources	Budget Expenditures	Totals
Clearly visible signage for on-site sorting	22 * \$35.00	\$770.00
Printouts of C&D recycling Information for public	615* \$2.00	\$1,230.00
	Total Costs	\$2,000.00
	Budget remaining	\$0.00

Metrics

- Number of brochures distributed through permitting
- Rollaway container rentals
- Transfer station data





Solution 3

- Increase incentives

City	Landfill rate (\$/ton)	Recycle rate (\$/ton)	Discount incentive (\$)
Seattle	\$145.00	\$75.00	\$70.00
Portland	\$94.00	\$35.00	\$59.00
San Francisco*	\$115.00	\$90.00	\$25.00
Skagit County	\$89.00	\$74.00	\$15.00



Conclusion

Solutions:

Increased education through the permitting process

On site sorting and signage

Increased incentives