Seattle Requirements for Construction & Demolition Materials

Recycling and Reporting

December 2014

Seattle SWAC

Seattle Public Utilities
Seattle C&D Definitions

- **Recycling** – *materials separated for reuse or recycling*
- **Beneficial Use** – *clean wood to hog fuel or industrial boiler fuel*
- **Alternative Daily Cover (ADC) and Industrial Waste Stabilizer (IWS)** – *ADC covers the active face of a landfill instead of soil and IWS provides structure in special landfills.*

  Both are counted as disposal

- **Disposal** – *material permanently place in a landfill*
MSW and C&D

MSW
- Self-Haul to City Stations
- Curb/Alley Collection
- Containers

C&D
- Generation
- Variable
- Private Facilities

2007 Generation – 848,759 tons
2013 Generation – 724,383 tons

2007 Generation – 415,801 tons
2013 Generation – 396,380 tons
# C&D Collection

<table>
<thead>
<tr>
<th>City Contracted Hauler for Non-Recyclable C&amp;D</th>
<th>Self-Haul</th>
<th>“Third Party” Recycling Container Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Management</td>
<td>Construction Contractors</td>
<td>ReNu</td>
</tr>
<tr>
<td>Demolition Contractors</td>
<td>Grayhawk</td>
<td></td>
</tr>
<tr>
<td>Home Owners</td>
<td>Bobby Wolford</td>
<td></td>
</tr>
<tr>
<td></td>
<td>United Recycling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Republic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waste Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Many Others</td>
<td></td>
</tr>
</tbody>
</table>
# C&D Receiving and Processing

<table>
<thead>
<tr>
<th>Category</th>
<th>Recyclers/Disposal Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salvage/Reuse</td>
<td>Ballard Reuse, Earthwise, Second Use Building Materials, Habitat for Humanity, Others</td>
</tr>
<tr>
<td>Source-Separated Recyclers</td>
<td>Renton Concrete, Rainier Wood Recyclers, All Wood Recycling, Seattle Iron &amp; Metal, Pacific Topsoils, Many Others</td>
</tr>
</tbody>
</table>
| “Commingled” or Mixed C&D Recyclers | • Recovery One, Tacoma  
|                               | • Black River, Renton  
|                               | • CDL Recycle, Seattle  
|                               | • United Recycling, Maltby  
|                               | • Others in Snohomish County                                                                 |
| Disposal – Private Solid Waste Transfer Stations | • Republic – Third & Lander  
|                               | • Republic – Black River  
|                               | • Waste Management – Eastmont  
|                               | • Republic & WM Railheads                                                                 |
# End Point Destinations for C&D

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Salvage</strong></td>
<td>Cabinets, Doors, Windows, Trim, Lumber</td>
</tr>
</tbody>
</table>
| **Recycling**     | Metal to new metal products  
                          Concrete to Aggregates  
                          Asphalt Paving to Hot Mix Asphalt  
                          Gypsum – Wallboard, land application  
                          Carpet – new carpet, plastic molding  
                          Wood – composting, mulch |
| **Beneficial Use**| Wood – RockTenn or Port Townsend mills |
| **Disposal in a Landfill** |  
                          • Direct Disposal  
                          • Residual from Processing as ADC  
                          • Residual from Processing as “IWS”  
                          • Columbia Ridge, Oregon  
                          • Klickitat County, WA  
                          • Weyerhaeuser (now Cowlitz County)  
                          • Other C&D Landfills |
Seattle C&D Tons Generated

Tons

2013  396,380 tons
2012  371,962 tons
2011  359,390 tons
2010  288,960 tons
2009  288,550 tons
2008  397,050 tons
2007  415,800 tons

Not including City transfer stations and City collections

Disposed includes:
- Direct landfill Disposal
- Alternative Daily Cover
- Industrial Waste Stabilizer

Recycled:
- 61.8% in 2013
- 60.2% in 2012
- 63.2% in 2011
- 61.9% in 2010
- 56.4% in 2009
- 50.6% in 2008
- 49.3% in 2007

Beneficial Use:
- 50.6% in 2008
- 60.2% in 2012
- 63.2% in 2013
- 61.8% in 2007
- 61.9% in 2011
- 56.4% in 2009
2013 Seattle C&D Generation with & without Concrete

Without Concrete
- Disposed: 201,460 tons
- Recycled: 23% of 201,460 tons
- Beneficial Use: 6.8% of 201,460 tons

With Concrete
- Disposed: 396,380 tons
- Recycled: 61.8% of 396,380 tons
- Beneficial Use: 18.2% of 396,380 tons
2013 Material Diversion Levels

- **Concrete**: 95% Reused or Recycled
- **Clean Wood**: 53% Diverted to Recycling And Beneficial Use
- **Clean Gypsum**: 85% Recycled
- **Metals**: 72% Recycled
- **Asphalt Roofing**: .6% Recycled
- **Carpet**: 11% Recycled

![Graph showing Material Diversion Levels](image-url)
Seattle Solid Waste and Building Code
Construction Waste Recycling Requirements

• Targeted Landfill Disposal Bans
• Recycling Facility Certification
• Waste Diversion Plan & Report
• Salvage Assessment
C&D Recycling Ordinances (2012-2013)

• 2012 Seattle Solid Waste Plan Adoption
  - 70% recycling goal by 2020 for C&D Citywide

• 2012 C&D Recycling Ordinance #124076-C&D Waste Recycling Required
  - Asphalt Paving, Brick and Concrete (effective 2012)
  - Metal, cardboard, new construction gypsum board (2014)
  - Carpet & plastic film wrap (2014)
  - Clean wood and tear-off asphalt roofing shingles (2015)

• 2013 SPU Director’s Rulemaking- details of facility certification, waste diversion reporting & landfill disposal bans
  - Director’s Rule SW-405.3 delayed the disposal ban on plastic film wrap and carpet to 2015 due to end market uncertainties

# Phased Landfill Disposal Bans for Construction Sites (2012-2016)

<table>
<thead>
<tr>
<th>Material</th>
<th>1/1/12</th>
<th>1/1/13</th>
<th>1/1/14</th>
<th>1/1/15</th>
<th>1/1/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Paving</td>
<td>Educate</td>
<td>Enforce</td>
<td>Enforce</td>
<td>Enforce</td>
<td>Enforce</td>
</tr>
<tr>
<td>Concrete &amp; Bricks</td>
<td>Educate</td>
<td>Enforce</td>
<td>Enforce</td>
<td>Enforce</td>
<td>Enforce</td>
</tr>
<tr>
<td>Metal &amp; Cardboard</td>
<td></td>
<td>Educate</td>
<td>Enforce</td>
<td>Enforce</td>
<td>Enforce</td>
</tr>
<tr>
<td>New Gypsum Wallboard Scrap</td>
<td></td>
<td></td>
<td>Educate</td>
<td>Enforce</td>
<td>Enforce</td>
</tr>
<tr>
<td>Unpainted and Untreated Wood</td>
<td></td>
<td></td>
<td></td>
<td>Educate</td>
<td>Enforce</td>
</tr>
<tr>
<td>Carpet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Educate</td>
</tr>
<tr>
<td>Plastic Film Wrap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Educate</td>
</tr>
<tr>
<td>Asphalt Roofing Shingles</td>
<td></td>
<td></td>
<td></td>
<td>Educate (July)</td>
<td>Enforce (July)</td>
</tr>
</tbody>
</table>

*Enforce – through field inspections and a possible monetary fine if “significant” amounts in disposal container or transfer station loads.*
# C&D Facility Certification Criteria (2014)

<table>
<thead>
<tr>
<th>Source Separated Recyclers</th>
<th>Permits &amp; Regulatory Compliance</th>
<th>Annual Reporting to Seattle</th>
<th>Monthly Reporting to Seattle</th>
<th>Minimum Recycling Percentages</th>
<th>Sampling Residuals for Landfill Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Separated Recyclers</td>
<td>Notification to Regulators</td>
<td>Yes, even if outside City</td>
<td>No</td>
<td>At least 90%</td>
<td>No</td>
</tr>
<tr>
<td>Mixed C&amp;D Recyclers</td>
<td>Solid Waste Permit Required</td>
<td>Yes</td>
<td>Yes</td>
<td>75% for LEED &amp; Built Green Projects</td>
<td>Yes – quarterly sampling of residual for targeted materials – must meet standard of less than 10%</td>
</tr>
</tbody>
</table>
Hauling and Facilities

Recycling Hauling – any company can haul as long as container contents are 90% recyclable

Recycling Facilities

“Qualified” Commingled Recyclers
- Recovery One, Tacoma
- Black River, Renton
- CDL Recycle, Seattle
- United Recycling, Maltby

Non-recyclable C&D only to be hauled by Waste Management under City contract
Waste Diversion Reporting (2014)

Purpose:
- Assess if projects with a building permit are recycling targeted construction materials

Applicability:
- Projects where permit issued after January 1, 2014
- All demolition permits
- New construction and alteration permits valued at $30,000 or greater

Report due within 60 days of a project receiving its “Final Inspection Approval” from DPD

- SPU has set out 1100 notifications to permit holders and received around 300 reports – problem in early 2014 in getting out word about the requirement
New Seattle Building Code Requirements

- **Effective Date:** January 1, 2014
- **Implemented:** July 1, 2014

- **New sections:**
  - SBC 106.5.9 & SRC R105.5.3

- **Applies to projects > 750 sf**
Waste Diversion Plan and Salvage Assessment

Required prior to permit issuance for all projects with a working area > 750 square feet

Waste Diversion Plan must include:
- Materials from jobsite
- Hauler
- Receiving location

Deconstruction and Salvage Assessment

- Applies only to demolitions
- Checklist of Salvageable Materials
- Can be performed by reuse retail companies, or demolition or deconstruction contractors
Market Development:

- Gypsum Wallboard
- Clean Wood
- Plastic Film
- Carpet
- Tear-Off Asphalt Shingles
Seattle Gypsum Wallboard Statistics (2013)

43,000 tons generated with 85% being recyclable (unpainted and not demolition scrap)

29,000 tons of clean gypsum recycled:
• New wallboard (Certainteed Plant)
• Land Application (DRS)
• Waste reduction opportunity – 12% of new construction drywall wasted during construction
• Landfill Issues – hydrogen sulfide gas (B.C. landfill disposal ban)

78,100 tons generated with 77% being recyclable (unpainted and untreated dimensional lumber, pallets, crates, clean engineered wood – nails okay)

Recyclable Wood Portion
13% Recycled
40% Beneficial Use
47% Landfilled

Painted & Treated Wood
No end markets
Carpet

• ~37,000 tons of carpet landfilled annually from Seattle & King County.
• 2013 – 2,000 tons generated from Seattle with around 11% recycled
• Recovery One in Tacoma and Again in Kent accept limited quantities of carpet for processing

• Problem – manufacturers now using PET instead of nylon in face fiber with no end markets
Plastic Film

• Clean LDPE accepted by all major recyclers

• End Market problem with dirty film from construction and agricultural sources

• Agilyx plant in Portland for plastics to crude oil production now closed.
Tear Off Asphalt Roofing Shingles

- **29,000 tons** of asphalt shingles generated in King County annually
- **2013 in Seattle around 12,600 tons generated**
- Only **104 tons** reported as being recycled
- Valuable resource (oil) gets disposed
Extensive material engineering tests conducted with pavement performance 2009 – 2014 favorable

King County also used at Bow Lake Transfer Station

WSDOT General Special Provision Specification allowing up to 5% RAS

King County Roads and Snohomish County now have their own specification for RAS in hot mix

*SPU needs to use in parking lot, road overlay paving projects.*
Questions? Contact Us:

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• Kathleen Petrie, DPD (WDP and Salvage Assessment)  
Kathleen.petrie@seattle.gov  (206) 615-0541

Others:
• Jess Harris, DPD Priority Green Program
• Kinley Deller, King County Green Tools Program
• Kris Beatty, King County Linkup Market Development

http://www.seattle.gov/util/C&DWasteManagement