



Mattress Recycling: Markets, Materials and Jobs



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Mattresses are composed of mostly recyclable components but mattress processors are rare. Learn about the challenges and successes of mattress recycling in British Columbia and Washington from the public and private perspectives, the opportunities that exist for the growth of mattress recycling, and the markets for mattress components in the Pacific Northwest region. This session is moderated by Terry McDonald, St. Vincent de Paul of Lane County; Oregon and DR3 Mattress Recycling.

Taking the Leap to Banning Mattresses Lessons Learned



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May 2013**



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Metro Vancouver

- Delivers regional services, planning and political leadership for 24 local authorities in Greater Vancouver Region
- 3rd largest metropolitan area in Canada
- 2.4 M residents
- Integrated Solid Waste and Resource Management Plan approved by the Province of BC in July 2011
- Outlines initiatives to achieve 70% diversion by 2015 and 80% by 2020



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2011 Recycling & Solid Waste Summary

Population Information

- 2,395,520 population
- 1.33 tonnes per capita generated
- 0.57 tonnes per capita disposed

Tonnes Information

- 3,188,348 tonnes of waste generated
- 1,817,446 tonnes (57%) recycled
- 1,370,902 tonnes (43%) public and private disposal



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Mattresses – Operation Problems

Transfer Stations

- damage to equipment final drives (\$30 K+ repair)
- jam compactors (compactor downtime 1 to 2 days, \$2 K+ repair; extra cost to top load)
- damage transfer trailer walls (\$1 K+ repair)
- loss of payload

Landfill

- wire wraps around bulldozer tracks and must be burned off (av. 1 hr/day)
- damage to equipment final drives (\$30 K+ repair), planetary & gears (\$7 K+ repair)
- difficult to compact (loss of airspace)
- difficult to bury properly (worker safety)



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Mattresses – Previous Solutions

- Isolate mattresses at Transfer Stations and send designated loads to landfills
 - Landfills deep bury and incurred additional operating costs
- Add a few mattresses to each transfer trailer before closing the doors and identify the load
 - Landfills not aware of mattresses in load; or would take additional time to pick-off the mattresses prior to the load tipping or being “walked off” the trailer
- Put mattresses in the bottom of the compactor to achieve some compaction
 - Tended to jam the compactor
- Managed mattresses with all the other waste
 - Ongoing equipment damage



Lessons Learned

The impact of unintended consequences.



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#1 – Make Sure Your Solid Waste System is Working Together

Public System:

- Metro Vancouver's SW system
 - 4 Major Transfer Stations (CRRP, NSTS, STS, MTS)
 - 2 Residential Transfer Stations (MRRTS, LTS)
 - 1 Waste-to-Energy Facility
 - 1 Landfill (Cache Creek Landfill - CCLF)
- City of Vancouver's SW system
 - 1 Major Transfer Station (VSTS)
 - 1 Landfill (Vancouver Landfill - VLF)

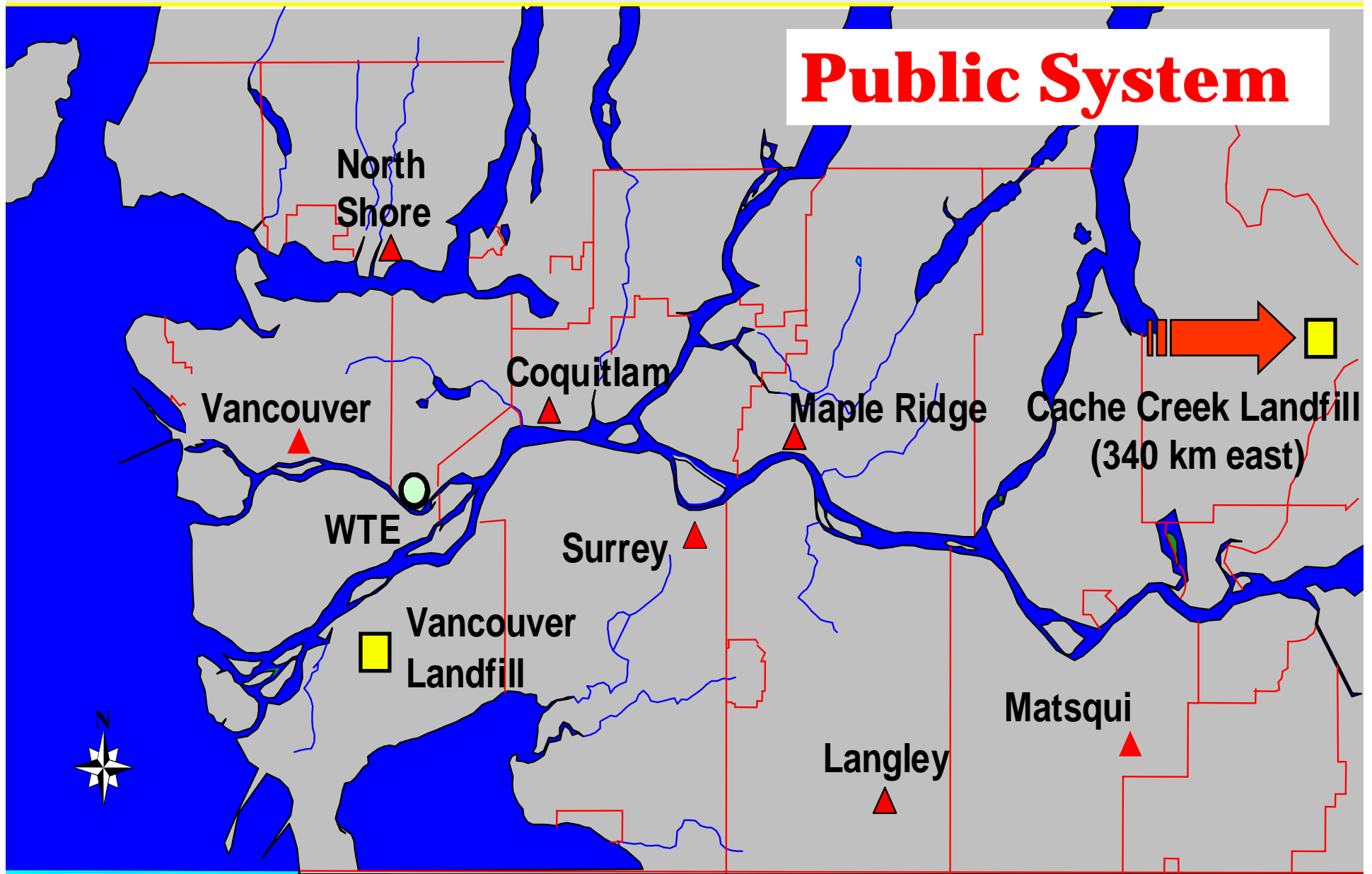
Private System:

- 46 Licensed Facilities (24 Brokers; 14 TF/MRF's; 7 Composting)
- 1 DLC Landfill



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Public System



■ Landfill ▲ Transfer Station ○ Waste-to-Energy (WTE)

What Happened ...

- January 2008, due to high equipment repair costs, VLF was looking at a different way to manage mattresses and had ongoing discussions with staff at Metro Vancouver
- May 2009, one Mattress Recycler initiated discussions with the Region to segregating mattresses at the Public TS
- November 2009, City of Vancouver decided to deal with the operational problems associated with mattresses by imposing limits:
 - Up to 4 units/customer at VSTS; paid \$82/tonne
 - 5+ units to VLF; paid \$82/tonne + a deep burial fee of \$200
- ***So... Customers brought their loads of mattresses to MV transfer stations***



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Impact to TS – *from 20 Mattresses per day to ...*

***Over 300 Mattresses/Day
at two Major TS***



**Commercial Customers with
1 to 2 tonnes of mattresses**

Unintended Consequences

- City of Vancouver did not want mattresses mixed with garbage at their landfill (VLF)
- Metro Vancouver TS were receiving upwards of 600+ mattresses/day
- At the TS, mattresses were mixed in with the garbage and sent to the VLF
- *So... we had to look at managing mattresses as a whole region – and consider something different*



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Staff Considerations to Managing Mattresses (2010)

Tipping Fee Bylaw provided the ability of the SW Manager to prohibit any refuse considered unsuitable for handling at the disposal sites

Operating Level – Segregate the Mattresses

- Limiting the quantity accepted at the TS & send segregated loads VLF to be deep buried (uncertainty regarding recycling)
- Accept all quantities at TS and/or VLF and redirect to Recycler
- Not accepting at TS and/or VLF and directing to Recycler
- There was only 1 Mattress Recycler in 2010



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Managing Mattresses cont'd

Financial Perspective – Cost Recovery

- Charging the tipping fee
 - (2010 - \$97/tonne; 2013 - \$107/tonne)
- Charging a flat rate per unit to cover costs
 - (\$20/unit; \$15/unit)

Philosophical Aspect – EPR Program

- Wait for Extended Producer Responsible program (mandated by the Province), often called Product Stewardship or Take Back



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#2 – Start Communicating Early Recommend a Mattress Ban Jan 2011

Internal 2010

- February – Senior Management
- May & June - Internal Management Committee (UMS)

Political 2010

- July – City Representatives (Regional Engineers Advisory Committee & the Solid Waste SubCommittee)
- August – UMS, REAC, Solid Waste Committee
- September – SW Committee & Board
- October – SW and Finance Committee & Board approval



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#3 Know Your Cities Internal Processes & Services

- 24 Local Authorities (Cities)
 - Budgeting process – some begin in February for the following year
 - Service levels – varying
 - Bulky items pick-up for free or a small charge
 - Annual pick-up service
 - Level of illegal dumping and cost spent each year
 - Municipal annual calendars – produced in spring for the following year



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#4 – Be Proactive in Introducing Recyclers to Your Cities

- Provide information on Recyclers, their fees (in-camera) and locations
- Organize visits to Recyclers
- Determine who will negotiate contracts with the Recyclers
- Cities will pay more money to send mattresses to a Recycler and often they will be over budget in the first year
- Cities costs to pick up illegal dumping will increase
- Consider having the Regional District absorb the Cities costs to manage mattresses – maybe for the first year; maybe

longer



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#5 – Be Prepared for Calls from Potential Recyclers

- Understand the needs of your Region
 - In order to keep transportation costs down, MV required 3 recycling facilities
- You will be asked how many mattresses can be recycled
 - 10% is a number used by industry
 - for MV - 5% in 2011 & 7% for 2012
- Recyclers are often new to operations - (best location of facilities, sole-source contracts, access to TS & disposal facilities, etc.)
- With Permitting Office, prepare a checklist identifying all the steps to establish a new recycling facility in the region



#6 – Consider Other Parties

- Commercial Haulers & Their Associations
 - Manage multi-family and industrial, commercial and institutional (ICI) sectors - need to education the MF sector
 - Haulers want a letter outlining ban to send to their customers – be careful your name is not in their letters!
- Private Transfer Stations and Landfills
 - Mandated to follow the material bans in the Tipping Fee
 - Often start removing items before they are banned (2010)
- Organizations that sell mattresses – understand their business
 - Sleep Country, The Brick, Sears, etc.

“Buy a mattress & we will take your old one for free”



#6 - Other Parties continued

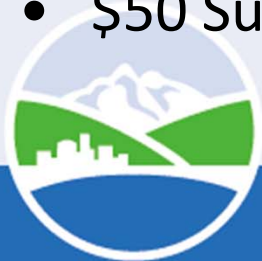
- Non-profit Organizations who collect “old” mattresses
 - Receive 40 to 50 K units per year with 16 K disposed (2010)
 - Impacted by the \$20/unit fee at Public TS – consider waivers; reduce fees
- TS Contractors or Work Crews
 - All mattresses are sent to the Recyclers
 - Require covered area - keep mattresses dry & forklift to manage
 - Need to address worker concerns with bed bugs



What Did MV Do? Took the Leap...

In October 2010, the Board approved the 2011 Tipping Fee Bylaw & effective January 1, 2011

- Mattresses were banned from the waste stream (garbage)
- Up to 4 mattresses were accepted at the Public Transfer Stations at a cost of \$20/unit in a segregated area
- > than 5 mattresses, customer directed to the Recycler
- Loads of mattresses were sent to the 3 Recyclers
 - By October 2010, 3 Recyclers were obtaining Permits
- \$50 Surcharge if mattresses in the garbage load



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What to prepare for after implementing a mattress ban?



#7 – Be Prepared for Illegal Dumping

- Respond to the Cities as they will be receiving calls from the public about illegal dumped mattresses – importance to address ahead of time
- Some Cities offered residents \$5 vouchers, worth \$20 at the Public TS, to encourage recycling of mattresses
- Be prepared for newspaper articles with lots of pictures of mattresses
- Have responses prepared ahead of time – often your CAO, Board or Committee Chair will be contacted directly by frustrated residents
- Perception versus Reality
- After 1 year, the issue of illegal dumping subsides

2011



2013



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#8 – At the Facilities...

Contractors or Site Operators will ask:

- What happens if the mattresses are in the garbage?
 - Use best efforts to remove and put in segregated area
- What happens if customers bring in more than 4 mattresses?
- Does the \$20/unit apply to:
 - Baby mattresses & Hide-a-beds - No
 - Children mattresses; Camping foam; Futons – Yes
- What about burnt, damaged, contaminated, infested mattresses?



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99% of Mattresses are Recyclable

Let the Recycler Determine



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#8 – At the Facilities...

- Residential customers will complain
 - Provide brochures on Recyclers information – fees cheaper
 - Important that residents are not told to go home and take their mattresses apart and then bring back the various materials when they complain about the fee
- Commercial loads with mangled mattresses
 - Multi-family education
- In 2011, Tipping Fee Bylaw – paid \$20/unit for segregated mattresses or \$50 surcharge to mattresses in a garbage load
 - cheaper for commercial to bring 3 or more mattresses in the garbage
- In 2013, changed Tipping Fee Bylaw - \$50 surcharge for mattresses in the load of garbage plus the \$15/unit



#9 –Help the Recyclers

- Be careful not to judge the Recycler's capabilities to respond to large fluctuations in inventory; often financing is an issue until bans are in place
- Assist with Permit Process
- Ensure sufficient tipping fees are paid to keep Recycler's in business – remember the avoided equipment repair costs and air space saved are part of the economic analysis, along with social and environmental aspects



#9 – Help the Recyclers cont'd

- Operational Upsets
 - Inventory fluctuations may impact permit limits
 - Problems with their recyclers
- Procedures to deal with non-recyclable mattresses or unrecyclable materials
- Consider “free” or “reduced” disposal of unmarketable items or non-recyclable mattresses
 - Be careful that a garbage load from the Mattress Recycler does not obtain a surcharge for non-recyclable mattresses
- May direct their waste to Waste-to-Energy Facility



Example of Operational Issue: Pocket Coils Issue at the Transfer Stations and ...



Issue for Metal Recyclers

Load of Pocket Coils



Load of Shredded Pocket Coils

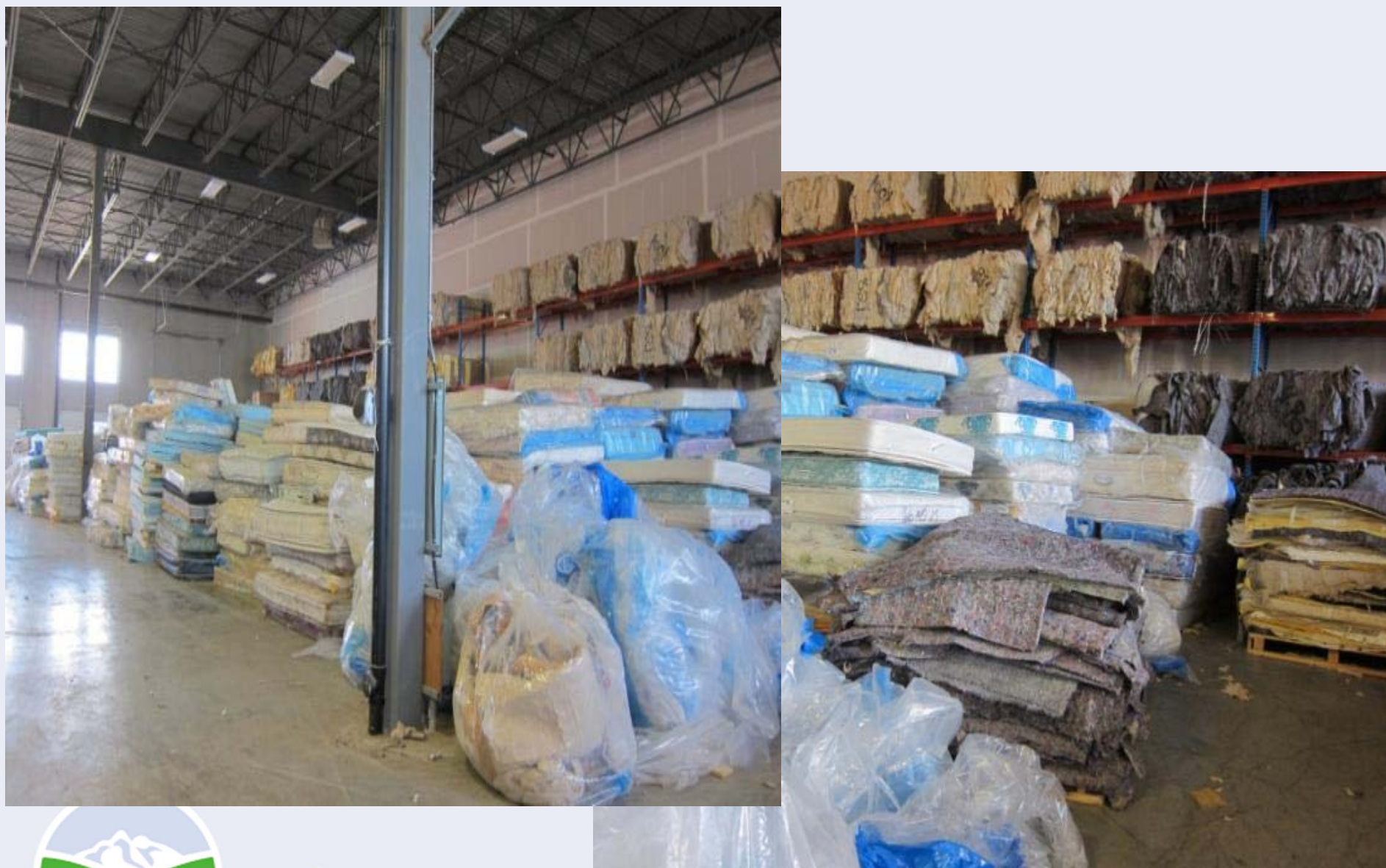


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So What Does Recycling Mattresses Mean...



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#10 – Celebrate Your Success



Mattresses Recycled:

- 2011 – 125,809 units
- 2012 – 175,100 units & 1,000+ pieces of furniture
- 3 new businesses
- 50 to 90+ employees
- Press Releases
- Committee Reports
- Conference Presentations



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In Summary

Preventing Unintended Consequences

- These lessons will help your Region be successful with your mattress recycling program – whether you “take the leap to banning” or start off slowly by encouraging recycling
- Additional benefits - stimulate your local economy, created new green jobs and diverting waste
- Just putting the “WORD” out that your Region is thinking about diverting or banning an item or material will generate opportunities – the private sector will start to work on these initiatives and come up with creative means of achieving your goals



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Thank You For Your Time

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**Information about Solid Waste & Recycling can be found
on Metro Vancouver's website under Services**

www.metrovancover.org



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mattressrecycling.ca
ENVIRONMENTAL SOLUTION



mattressrecycling.ca Recycles the Following Materials from Mattresses and Box Springs:

Metal



Foam



Wood



Toppers



Felt



Cotton



Coir



Plastic











Thank You
&
Happy Recycling

Fabio Scaldaferri

MattressRecycling.ca

WSRA 2013 - Mattresses

Mattress Recycling

May 13, 2013

Alex Erzen

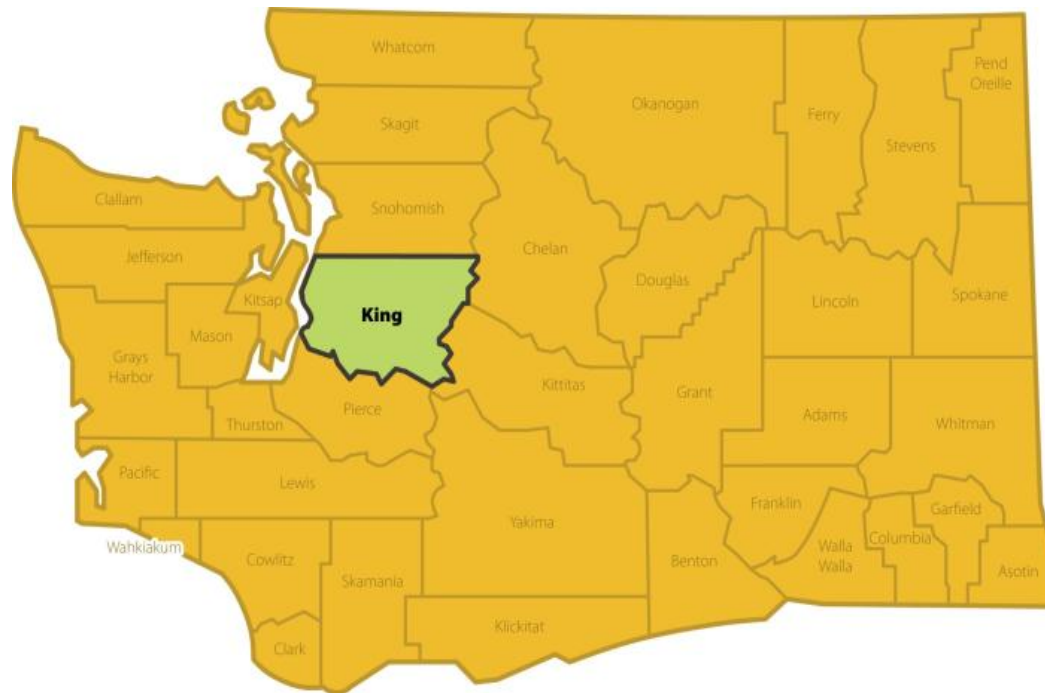
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King County Solid Waste Division

Operates 1 landfill, 8 transfer stations
and 2 drop boxes



www.kingcounty.gov/SolidWaste

Mattress Generation and Disposal

- ~1-10% of region's population
- Puget Sound metro: 4 million
= ~400,000 used mattresses / year
- 3000 tons or ~90,000 mattresses at
KCSWD Transfer Stations (2011)

Disposal and Recycling Costs

- Disposal: \$129.40 / ton (\$22 min.) <6 mattresses at KCSWD Transfer Stations
=\$4-\$8 each
- Recycling:
\$15-35 each, for drop off
\$35+ each, for pick up
\$7-10 each at Recycler / Processor

Facilitate development of

- *end markets* for recyclable materials
- *collection and processing infrastructure* that supplies markets

2011-13 focus: carpet, asphalt shingles, and mattresses



Mattress Recycling Summit: 2011

- **50+ mattress retailers, manufacturers, nonprofit reuse and recycling organizations, waste and recycling haulers, public agencies**
- **Challenges and solutions: recycling experts and stakeholders**



Take it Back Network



- **Partnership** to *collect* and *recycle* electronics and fluorescent lighting
- Privately funded
 - Businesses charge a fee for recycling
 - No government funding of recycling costs

Take Back and Recycling

- Collect mattresses from the public and generators, for a fee
- Send mattresses to processors to recycle into end market materials
- King County promotes Network



Private Processing & Collection

- 2011: 1 processor (CI) and 1 or 2 locations
- 2013: 3 processors and 5 locations

Other Mattress Management

- Legislation:
 - Product Stewardship in CT, CA
 - Federal Furniture EPR in France
- Disposal ban: British Columbia

Resources

LinkUp and Mattress Resources:

www.kingcounty.gov/linkup

Take it Back Network recycling locations:

www.kingcounty.gov/takeitback



Contact

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WSRA Conference & Trade Show
May 12-15, 2013



Thank you for sponsoring!





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