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Canada united in the achievement of zero waste, now and for future generations

**Construction, Renovation and Demolition (CRD) Working Group**  
October 19, 2017

# AGENDA

- Welcome and general announcements
- Charter Feedback Framework Elements
  - *Hierarchy of Waste Management – David Redfern, Andrew Marr*
  - *Common Language – Peter Hargreave, Helen Goodland*
  - *Principles of Design – Clint Undseth*
- Pilot Discussion & Draft Template
- AGM and Members Forum update – Jane McCrae
- Review Project Timeline
- Next meeting – Thursday, November 9th, 2-3pm PST

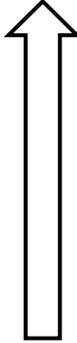
# WORKING GROUP OBJECTIVES

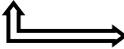
The **Construction, Renovation and Demolition (CRD) Working Group** aims to advance waste prevention and reduction in the construction and built environment sector in Canada through three core objectives:

1. Reduce the amount of CRD waste being generated; remove the roadblocks for the use of recycled and reused materials in the construction process; promoting life cycle costing; improving C & D diversion rates to the highest value use (see 'context' for Design Portfolio Schematic)
2. Promoting the alignment of municipalities' sustainability, engineering and procurement departments in their construction and maintenance programs
3. Determine how the procurement process can be leveraged to reduce the amount of CRD waste being generated in the construction and built environment sector at equal or lower life cycle costs.

# HIERARCHY OF WASTE MANAGEMENT

## Framework Elements

Waste Management Hierarchy		CR & D Waste Management Practice	Value Generation	GHG Reduction	Natural Resource Preservation	Landfill Space Optimization	Energy Production	Construction Resource Efficiency	Community Resilience	Examples
 Desired      Undesired	<b>Reduce</b>	Smart design & lifecycle	✓	✓	✓	✓		✓	✓	Life cycle costing to reduce CRD production over the life of the construction's use. Could be in design of construction, design of the materials, etc.
	<b>Reuse</b>	Demolition Salvage	✓	✓	✓	✓		✓	✓	Salvage of doors, windows, fixtures, etc from home demolition
	<b>Recycle</b>	Recycle at Optimum Value	✓	✓	✓	✓		✓		Recycled Asphalt Pavement (RAP) reused as asphalt; recycled concrete reused as engineered roadbase or in concrete
	<b>Recover</b>	Recycle at lower value Thermal Energy Recapture	✓	✓	✓	✓	✓			RAP and crushed concrete used as construction fill material; chipped wood for hog fuel; alternative fuels in cement kilns
	<b>Residual Disposal</b>	Managed Landfill		✓						Municipal or private permitted professionally managed landfills
	<b>Unmanaged Disposal</b>	Unpermitted Dumps								Farmer fields, Vacant lots, side of the road



*Key Element: As one moves up the hierarchy the rules and regulations must reward the desired behaviour with improved value generation.*

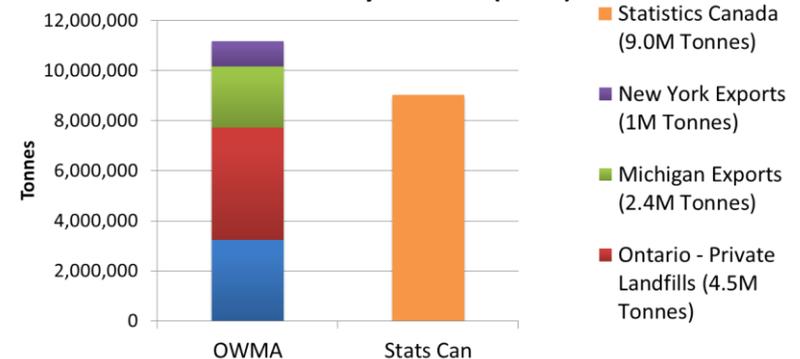
# COMMON LANGUAGE & DATA COLLECTION

## Framework Elements

- Common Language
  - ✓ CRD Waste Definition
  - ✓ Define Common Language
  - ✓ Quantify Scope
  
- Key Questions
  - ✓ There is a wealth of data. We do not want to reinvent the wheel.
  - ✓ Sidebar on Crushed Concrete and Recycled Asphalt? How do we define re-use?
  
- Currently planned action
  - ✓ Survey of NZWC Members
  - ✓ Survey of Procurement and Engineering in select Municipalities



**OWMA vs. Statistics Canada Data on Waste Landfilled by Ontario (2014)**



Material	Produced (kT)	Recycled (kT)	Landfills (kT)	Diversion Rate (%)
Concrete	530.9	530.4	0.5	99.9
Asphalt	217.2	182.6	34.6	84.1
Wood	472.2	254.3	217.9	53.9
Metal	37.7	29.9	7.8	79.3

# DESIGN PRINCIPLES FOR WASTE PREVENTION

## Framework Elements

### DESIGN PRINCIPLES FOR WASTE PREVENTION

4.3 - Attachment 1

- Design to source rapidly renewable, re-used, reclaimed, or recycled materials using low-waste extraction
  - Choose materials wisely, considering post-use pathways
  - Dematerialize; use less to make as much
  - Add value to byproducts for use in other industries
  - Use energy efficient and low waste manufacturing and transport
  - Lightweight the products and packaging while preserving recyclability
  - Minimize packaging relative to product size
- What waste is created at each stage upstream?  
What can we redesign?



- Design for what the user needs, without excess
  - Optimize performance for the application
  - Design for durability and repair
  - Provide clear instructions for proper use
  - Ensure accurate 'green' marketing claims
  - Use requires low or no energy
  - Plan a repair program
- Will using this create solid waste?  
How can we prevent or reduce the amount of waste created?  
Can we enhance performance during use?

#### POST-USE

- Design for modularity; ease of repair, parts replacement or disassembly for recycling
  - Reuse by user or by another industry
  - Recyclable or Compostable
  - Include instructions for disposal
- How will the user know what to do once they're done using the item?  
Communicate with waste handlers to understand and design for the post use reality of your products and packaging.

*Waste prevention starts where design begins*

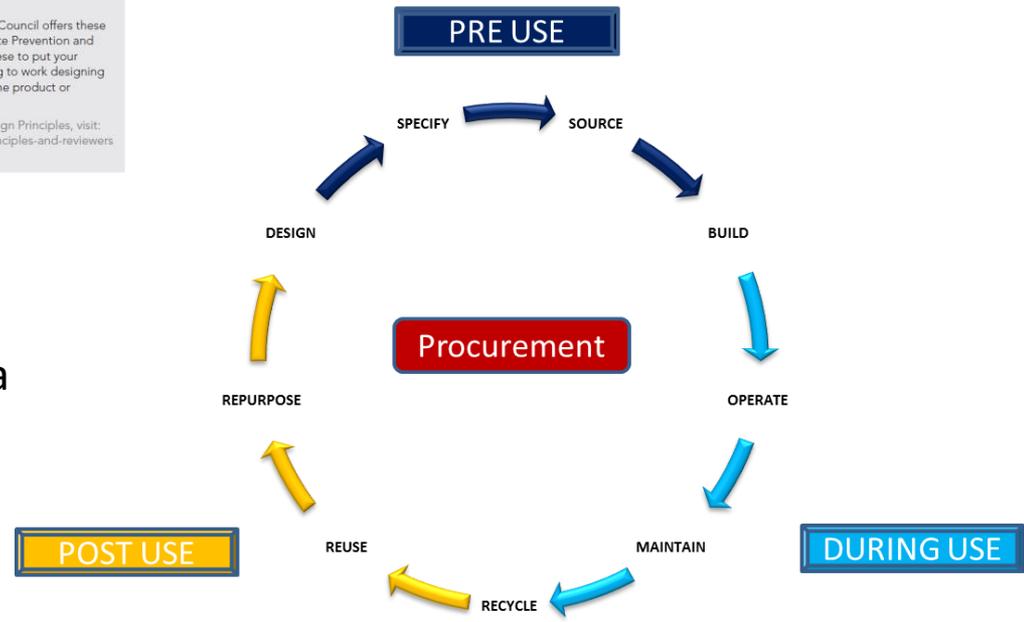
The National Zero Waste Council offers these Design Principles for Waste Prevention and Systems-Thinking. Use these to put your company's design thinking to work designing away waste throughout the product or package life cycle.

To read the full list of Design Principles, visit: [nzwc.ca/focus/design/principles-and-reviewers](http://nzwc.ca/focus/design/principles-and-reviewers)



## Leverage NZWC Packaging Working Group Design Principles

### To Create Design Principles for a circular Build



## NZWC CRD Working Group Pilot Proposal

**Pilot Name: Asphalt Plant Certification for RAP Usage**



**Summary:** Use Certification process of asphalt plants to: encourage suppliers to improve their plants and processes; allow municipalities to drive sustainability goals by encouraging higher RAP usage while improving quality and life cycle guarantees.

**Movement in Waste Hierarchy:**  
Recover to Recycle

**Stakes:**  
500kt of RAP generated each year with approx only half reused in asphalt

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**Challenge:** Asphalt must be milled and replaced regularly in the GVA. This work represent approx 50% of asphalt laid. Current specs only allow 20% of RAP to be reused in aggregates leaving the rest to be dumped with concrete rubble to be used as lower value fill material.

**Blocker** Quality Assurance for asphalt produced with high RAP content

**Proposed Solution:** Technology and process are available to allow for up to 50% RAP with no loss in life cycle value. These elements should be quantified and used in a formalized process where plants would be certified based on their setup and investment on allowed RAP content.

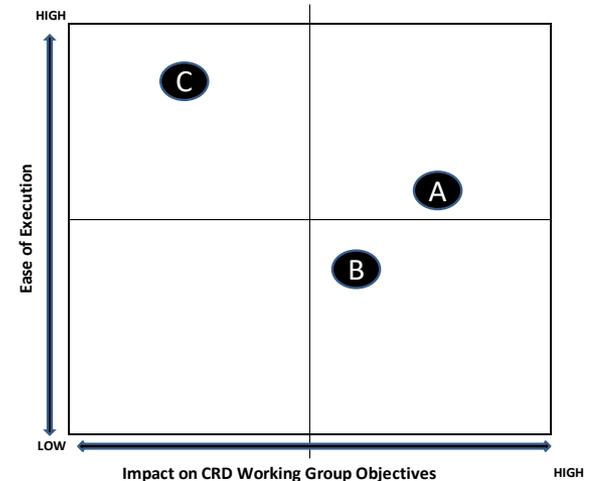
**Stakeholders:** Municipalities Engineering & Sustainability, Asphalt Producers, MMCD, Asphalt and Roadbuilding SMEs, Deliotte, BC Roadbuilders

**Value:** Canadian asphalt market is approx 35M tonnes. If RAP contents could be raised 10% this would reused 175K tonnes of asphalt cement, 3.3M tonnes of premium engineered aggregates, and 5M kms of dump truck travel per year

Alignment with Working Group Objectives	yes
Reduce the amount of CRD waste being generated; remove the roadblocks; improve CR & D diversion rates to the highest value use	<input type="checkbox"/>
Promote the alignment of municipalities' sustainability, engineering and procurement departments objectives	<input type="checkbox"/>
Determine how the procurement process can be leveraged to reduce the amount of CRD waste being generated in the construction and built environment sector at equal or lower life cycle costs.	<input type="checkbox"/>

# DRAFT PILOT TEMPLATE

- Structured Approach to Pilot Submission to drive framework element use and to assess pilots
- Ability to plot pilots on 2 axis of impact and ease of execution.



# AGM and Members Forum Update

## Proposed Breakout Questions (ALL GROUPS):

**Format: 30 minutes per question; can either stay at one table for full hour, or move to 2<sup>nd</sup> choice table at 30 min point.**

### **]The first question -**

What opportunities for collaboration do you see that will enable us to do our work more effectively, achieve greater impact, and work more efficiently in the core areas of – a) Food b) Circular Economy c) PDP d) CRD? **For**

### **Example:**

The Design Portfolio was developed within the PDP working group and is now a Council wide initiative. How can the Portfolio be used more effectively to promote and advance the goals of the Council; and thus to deliver more value to the companies profiled?

The National Food Waste Strategy is being led by the Council as a whole, though food waste related projects have been delivered by the food working group. Food waste does intersect with other working groups as well. Given what you have heard to date on the NFWRD and its feedback, how might members and working groups zero in on activity that collaboratively supports work on the national strategy, either directly or indirectly?

Other?

we have heard in previous council board meetings, as well as at our conferences, how important plastics are to tackle as a waste stream. Without adding another area of work, but thinking instead around how we might best incorporate plastics into existing work trends, what work could/should we do in this area? How might members and the council best collaborate?

# Next Meeting & Timeline

- Timeline & Milestones**
- Next meeting – Thursday, November 9th, 2-3pm PST**