

# Construction and Demolition Material Recycling Program

WMAC Meeting  
June 26, 2012

## Purpose

As part of the Waste Management Advisory Committee's (WMAC) defined role and associated task/project document:

**WMAC recommended the following Action Item for Staff:**

- **Shingle/Construction and Renovation Material Recycling – review opportunities to divert these material streams**

## Presentation Outline

- Construction and Demolition (C&D) Materials
- Regulatory Framework
- C&D Collection, Recycling, End Markets for Niagara
- Niagara Transportation & Recycling Processing Costs
- Summary of Other Municipal C&D Diversion
- Recommendations

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## C&D Materials

Types of materials typically generated at a C&D project site and delivered to a Regional Collection Site:

- Gypsum Wallboard
- Rubble
- Wood
- Roofing
- Plastics
- Metals (included in existing scrap metal recycling category)

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## Regulatory Framework

### C & D Materials

- 3Rs Regulations
  - Ontario Regulation 102/94
    - waste audits, develop and implement waste reduction work plans
  - Ontario Regulation 103/94
    - source separation programs for specified waste

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## Waste Diversion Ontario (WDO)

### WDO's Definition

*C&D material **generated by do-it-yourself activities in residential dwellings**, that is collected through residential curbside pick-up or self-haul drop-off.*

*Larger amounts of C&D material generated by builders contracted to carry out residential renovation or construction is considered part of the commercial waste stream, and is outside the scope of Residential GAP.*

*C&D materials, which are used for building internal roads at landfills (non-MTO specifications) or as landfill cover material, cannot be counted towards diversion.*

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## Proposed Waste Diversion Act (WDA) Amendments

2009 Minister's Report on the Review of Ontario's Waste Diversion Act 2002 identified C&D as a potential material to be designated for diversion

MATERIAL	TIMELINES
Construction and Demolition Material (e.g., wood, rubble – masonry and concrete, shingles, drywall, metal, fixtures, flooring)	Short Term – 2 years

WDA amendments were not implemented

## Niagara 2011 C&D Materials Tonnage

### Regional and Private Drop-Off Locations:

Bridge Street Drop-Off Depot, Humberstone Landfill, Niagara Road 12 Landfill and Walker Drop-Off Depot

Material	Residential	IC&I	Total
Gypsum Wallboard	402	97	499
Rubble - Concrete, asphalt	1,774	3,301	5,075
Wood	2,075	620	2,695
Roofing	1,670	3,631	5,301
Sub Total – Regional Sites	5,921	7,649	13,570
Walker Drop-Off Depot (primarily concrete)	624	n/a	624

## Gypsum Wallboard – Existing Niagara Program

### Collection

- Separated at each Regional Collection Site
- Shipped to Processing Facility in Oakville



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## Gypsum Wallboard – Existing Niagara Program

### Recycling Processing

- Recycling processing facility in Oakville
- First Step – material broken by loader
- Next steps include transfer through conveyor, manual sorting of wood and plastics, magnetic separation for metal, pulverization and separation of paper from gypsum



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## Gypsum Wallboard – Existing Niagara Program

### End Markets

- Reclaimed gypsum sold to manufacturer in Mississauga where it is incorporated with synthetic gypsum to make new drywall product
- Paper shipped to farmers for composting or bedding material



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## Rubble – Existing Niagara Program (Limited Scale)

### Collection

- In 2011, concrete, asphalt and bricks stockpiled together in one pile at Regional Collection Sites
- Used for on site road construction
- Starting mid-2012 separate piles of concrete and asphalt. Haul to nearest quarry for recycling



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## Rubble – Existing Niagara Program (Limited Scale)

### Recycling Processing

- At the quarry the concrete is crushed and reused for road base material



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## Rubble – Existing Niagara Program (Limited Scale)

### End Markets

- Reusable granular used as a base for a parking lot in Grimsby
- Region allows use as backfill material, must meet granular specifications



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## Wood – Possible Future Program for Niagara

### Collection

- Wood separated at each Regional Drop-off Depots
- Stockpiled and ground into woodchips
- Currently used as alternate daily cover and at tipping face during wet conditions; however not defined as diversion by WDO



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## Wood – Possible Future Program for Niagara

### Recycling & End Markets

- Option for Niagara to ship wood to recycling facility in Hamilton
- Woodchips used as a mulch by landscapers



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## Roofing – Possible Future Program for Niagara

### Collection

- Currently shingles landfilled in Niagara
- Limited markets for recycled shingles available
- Region received notification that a potential shingle recycling facility may be opening in Toronto or southern Ontario, subject to agreements with potential suppliers

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## Roofing – Possible Future Program for Niagara

### Recycling Processing



- One company in London recycles shingles



- Grind and screen shingles to produce - TRY Pave – recycled asphalt and shingle fines material

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## Roofing – Possible Future Program for Niagara

### End Markets

- TRY Pave used on road base, parking lots, trails, etc.
- Surface treatment application over the TRY Pave
- Recycling facility in Toronto implementing pilot with grinding shingles for use in asphalt



TRY Pave material used on Prospect Hill Road, Middlesex

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## Plastics – Niagara's Program On-Hold

### End Markets

- Plastic pipe and plastic siding separated at Humberstone Drop-Off Depot and hauled to a recycling facility in Mississauga
- End 2011, recycling facility stopped accepting Niagara's plastics




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## Niagara's Transportation & Recycling Processing Costs

Residential Material	Cost/tonne (excl HST)	Estimated Annual Recycling Cost
Gypsum Wallboard	\$67 - \$88	\$ 27,000 - \$ 35,000
Rubble	\$6 - \$10	\$ 11,000 - \$ 18,000
Wood	\$55 - \$58	\$ 114,000 - \$ 120,000
Roofing	\$66 - \$73	\$ 111,000 - \$ 122,000
<b>Total</b>		<b>\$ 263,000 - \$ 295,000</b>


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## Summary of Other Municipal C&D Diversion

Municipality		Gypsum Wallboard	Rubble	Wood	Roofing
Durham Region	\$/tonne	\$55	<i>Do Not Divert</i>	\$52.17	\$50-70
	tonnes	243		2,436	
Halton Region	\$/tonne	\$15.38	\$0	\$35.73	<i>Do Not Divert</i>
	tonnes	684	19,004	4,692	
City of Hamilton	\$/tonne	<i>Do Not Divert</i>	<i>Do Not Divert</i>	n/a	n/a
	tonnes			467	


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## Summary of Other Municipal C&D Diversion Cont'd.

Municipality		Gypsum Wallboard	Rubble	Wood	Roofing
Peel Region	\$/tonne	\$58.35	n/a	\$47	\$70.04
	tonnes	n/a	3,579	8,305	498
Simcoe County	\$/tonne	\$32.50 + Trans. costs	\$0	\$100/Load	\$0
	tonnes	1,500	170	3,500	4,100
Waterloo Region	\$/tonne	\$42.50	<i>Do Not Divert</i>	\$9.27	\$61.13
	tonnes	337		729	1,556

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- ## Recommendations
- Based on available markets and subject to budget approval, continue to divert the following residential C&D materials:
    - Gypsum wallboard, concrete and asphalt
  - Based on emerging markets and/or end uses, consider future C&D materials diversion of the following:
    - Shingles and clean wood
  - That staff continue to monitor and investigate opportunities for recycling other C&D materials
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## Questions?



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