Insights into Evolving Construction, Renovation, Demolition Waste Diversion in Canada

Exploring Canadian Opportunities

Dillon Consulting

About Dillon

CANADA BEST MANAGED COMPANIES

Platinum member

Tessa Vlaanderen

Circular Economy Lead

Circular Economy & Waste Advisory Services

- Zero Waste Plans
- Material Flow Analyses
- Waste Reduction and Diversion Strategies
- Solid Waste Management Plans
- Feasibility Studies
- Waste Composition Studies
- Technology and Policy Evaluations
- Material Disposal Strategies
- Due diligence for solid waste services acquisitions and investments

CRD Material Flow Studies

- **Environment and Climate Change Canada (ECCC) -** Economic and Environmental Assessment of Waste Diversion in Canada's C&D Sector Study;
- **Guelph-Wellington Circular Opportunity Innovation Launchpad** - Material Flow Analysis for CRD Materials;
- **B.C. Ministry of Environment and Climate Change Strategy** - Economic and Environmental Impact of Waste Diversion in B.C.'s C&D Sector Study;
- **Manitoba Environment, Climate & Parks** - Economic & Environmental Impact of Waste Diversion in Manitoba's CRD Sector Baseline Study;
- **Nova Scotia Valley Waste Management,** Wood Waste Study;
- **City of Abbotsford,** Disaster Debris Management;
- **Canadian Standard Association (CSA Group)** - CRD Waste Management Current Practices and Standard Recommendations.

Interviewed Stakeholders

Governments and regulators (at all levels)

Research agencies and Standard bodies

Property owners, developers

Waste haulers and recyclers

Architects, designers and engineers

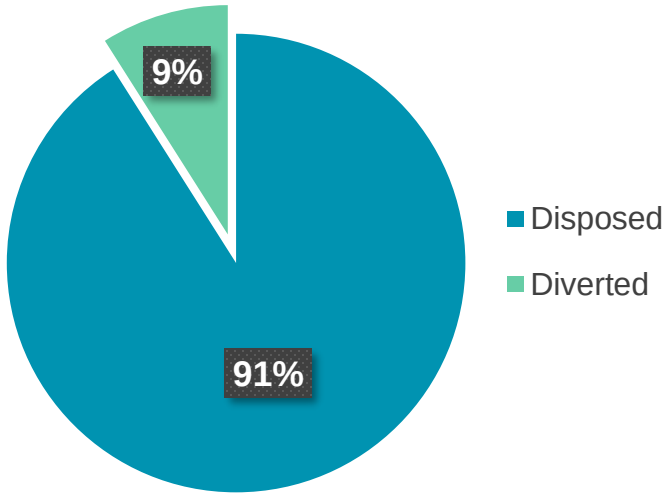
Builders, trades

Manufacturers and suppliers

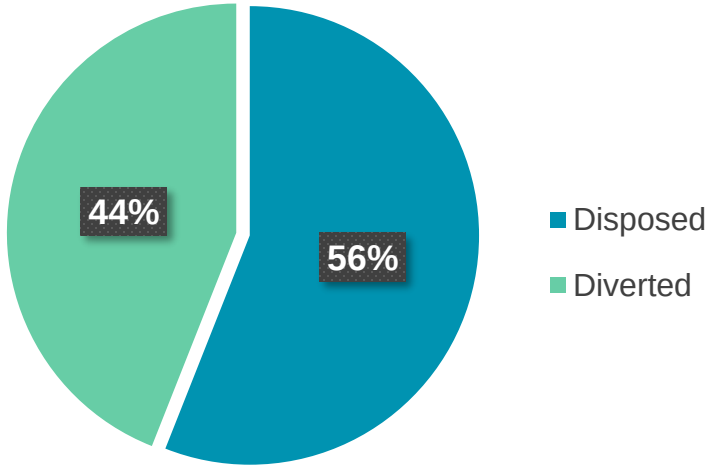
Current Landscape

Current State Overview

Total CRD Material Tonnages, Stats Canada 2018



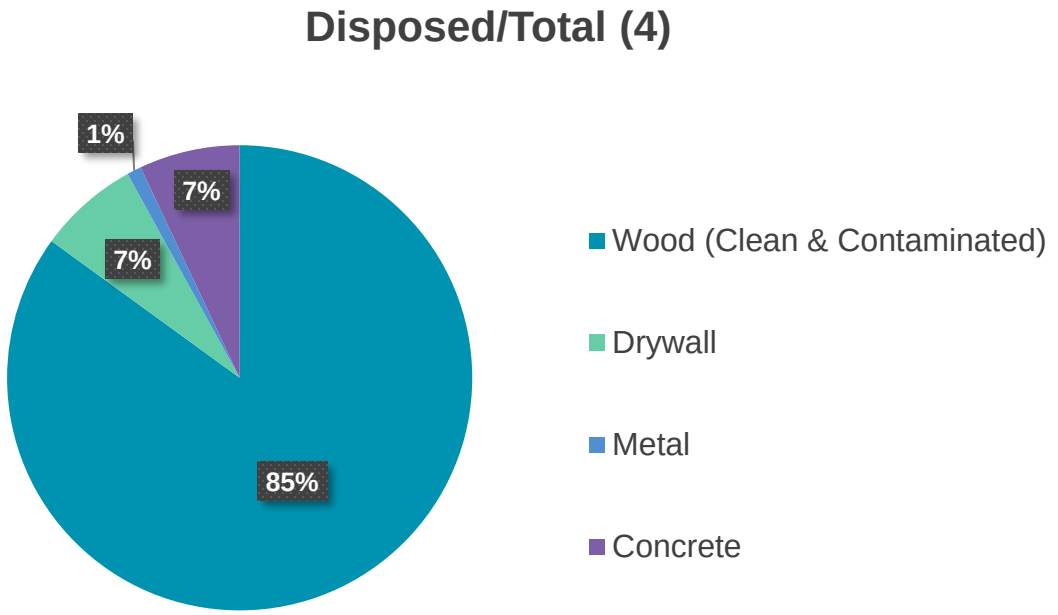
Total CRD Material Tonnages, Dillon Study, 2023

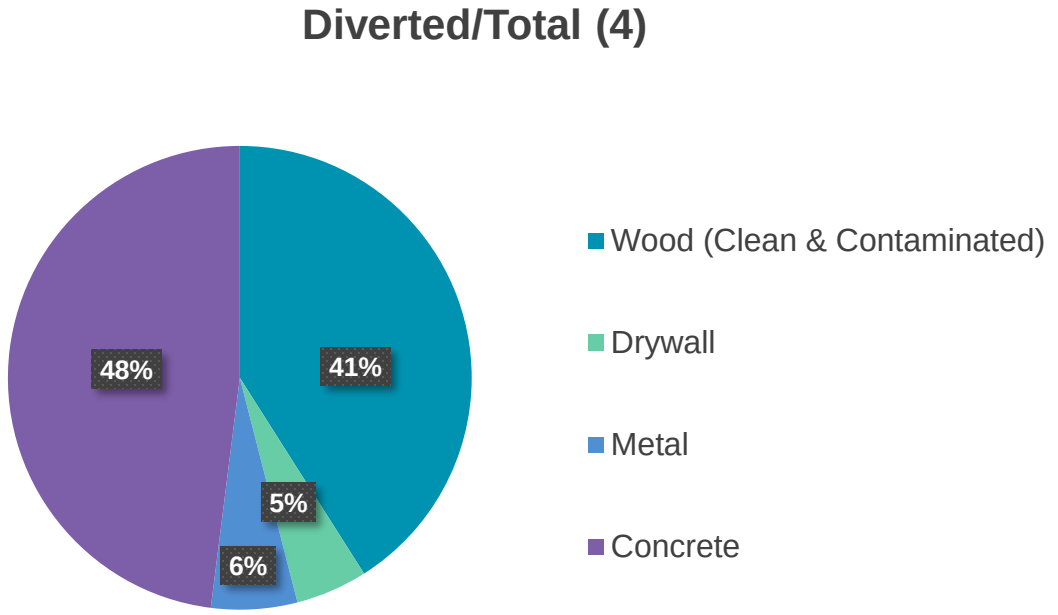


- Overview of Disposal vs. Diversion in CRD Materials
- Diversion includes composting, recycling, reuse, and WTE in some regions.
- National trend shows higher disposal than diversion: Stats Canada's 2018 report particularly high (91% disposal, 9% diversion).
- Dillon study reveals higher diversion and lower disposal in certain provinces, suggesting possible underreporting in private CRD diversion facilities.

DILLON CONSULTING

Current State Overview



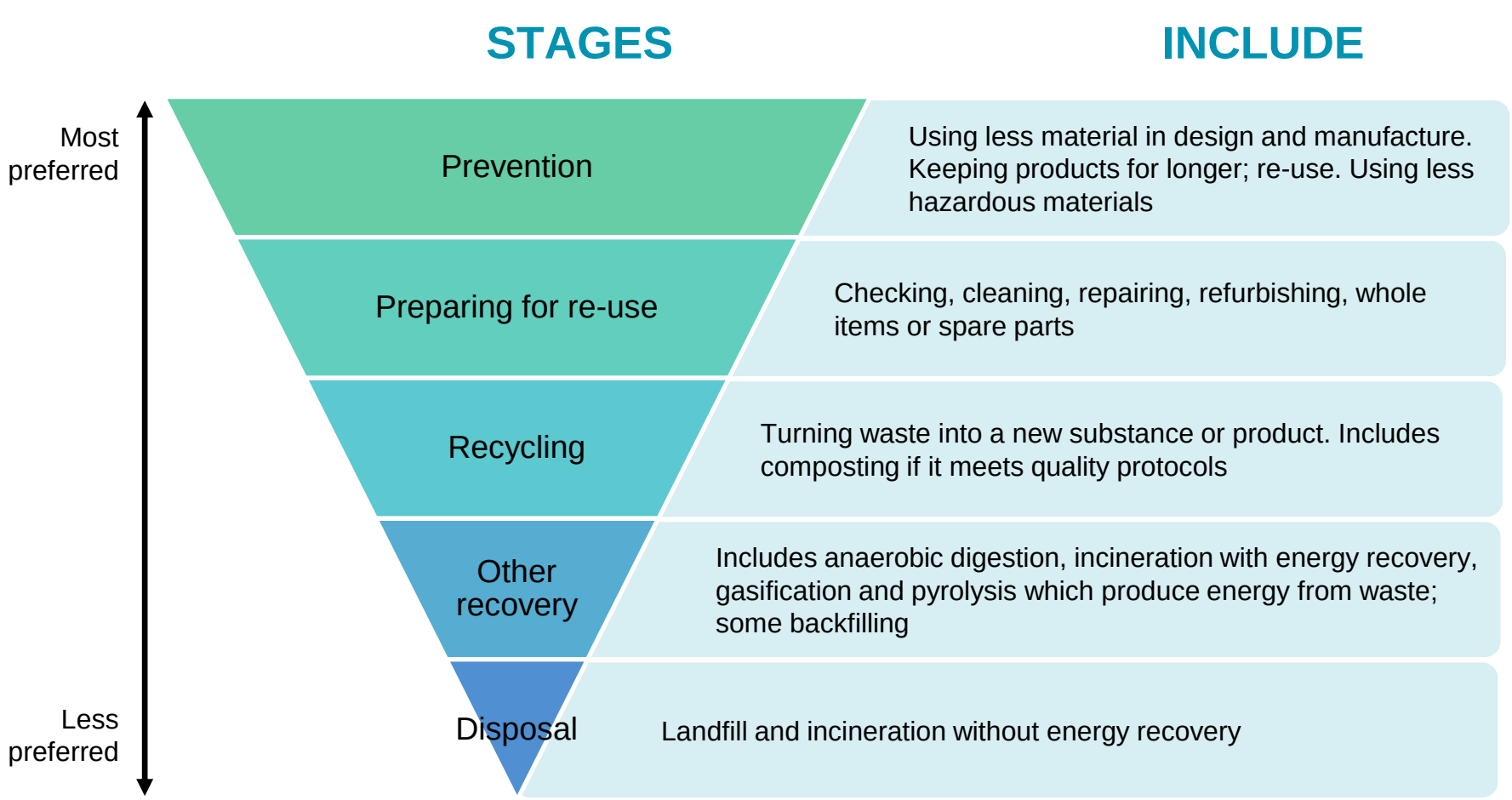


- Nationally, wood is the main CRD material being disposed, accounting for 85% by weight, with unclear sources.
- Data challenges due to non-standardized reporting across facilities, creating an opportunity for industry standardization.
- Wood and concrete account for the majority of diverted CRD materials, by weight, nationally.
- Wood and drywall show high potential for diversion/reuse with proper policies and infrastructure.
- BC, Quebec, Ontario, and the Atlantic provinces lead in CRD waste diversion, with policies increasing landfill diversion by 30% in the past decade.

DILLON CONSULTING

Diversion Efforts – Highest Best Use

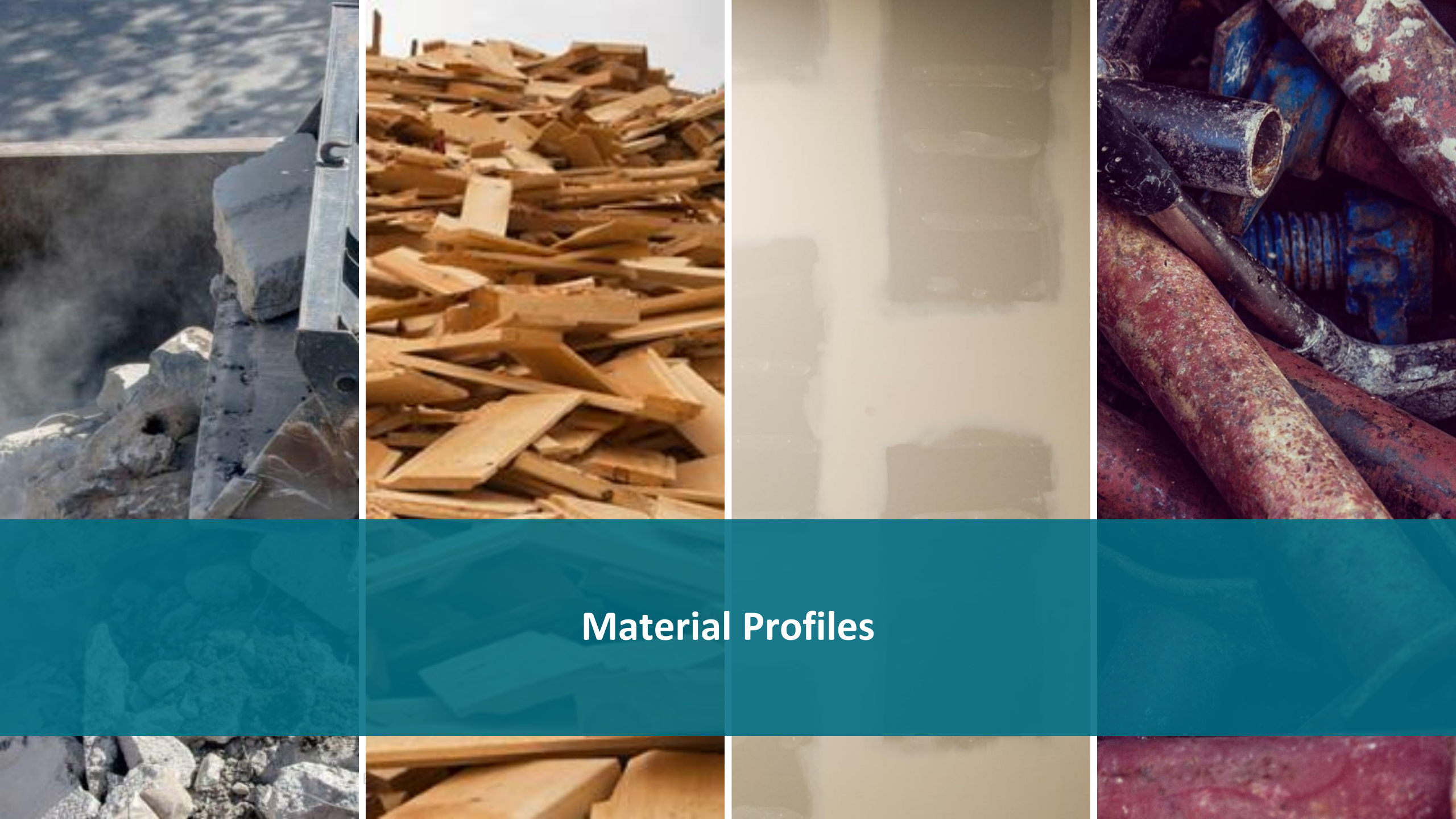
Eliminate waste = Guiding circularity principle



Current Practices available in Canada

- House moving
- Deconstruction
- Second life Applications, Recycled materials:
  - Gypsum as recycled drywall or soil amendment, etc.
- Refuse Derived Fuel
- Landfill Cover

DILLON CONSULTING



Material Profiles

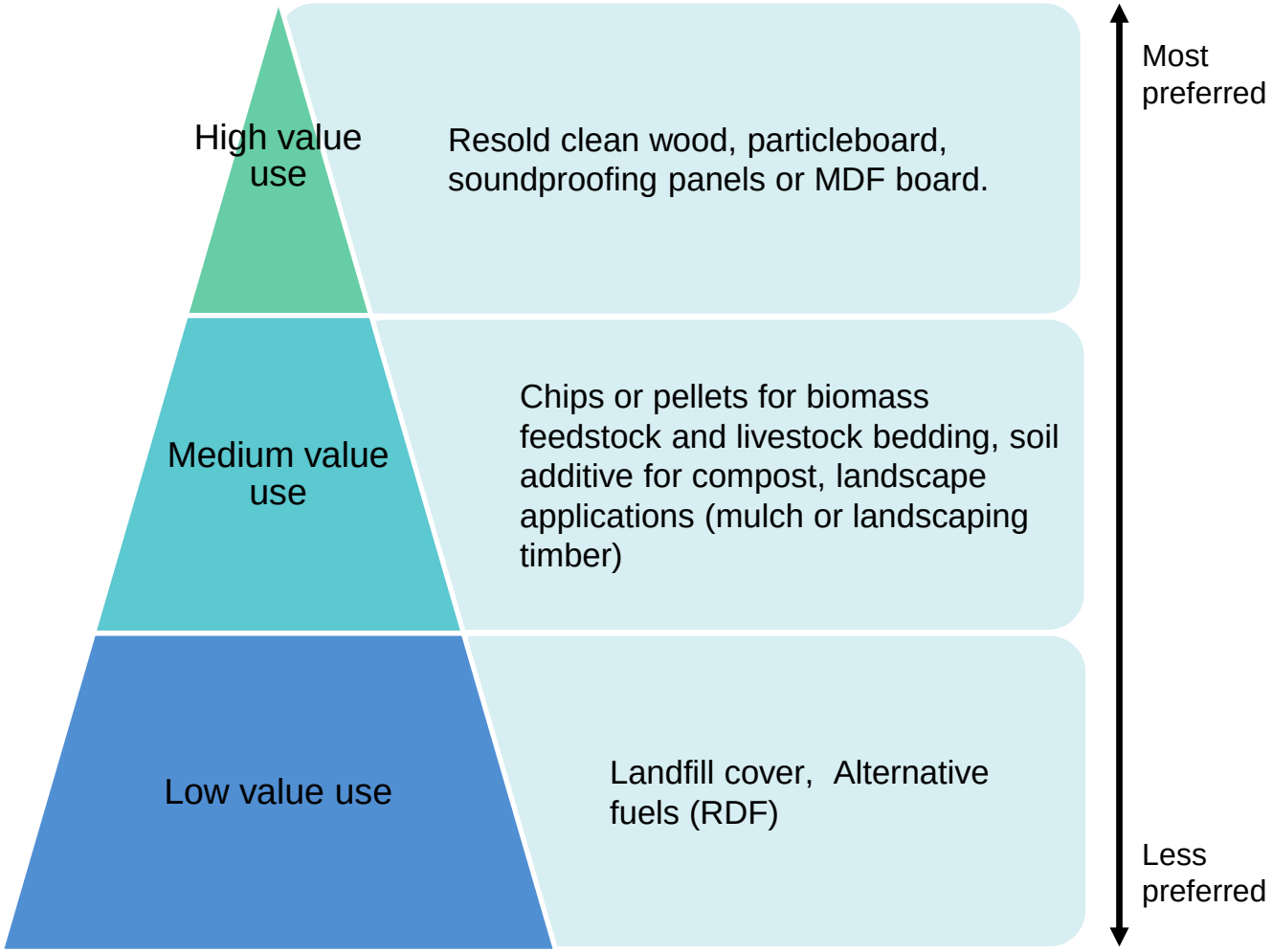
Wood – National Overview

Current State

- Wood constitutes 85% of disposed material from all sectors (Residential, ICI, CRD) in landfills
- CRD sector wood is categorized as clean or contaminated; few municipalities distinguish, impacting reuse and processing methods.

Factors Influencing Diversion

- Few CRD facilities offer preferential tipping fees for sorted waste like wood in urban and rural areas.
- Bans on clean wood in landfills (e.g., Metro Vancouver, Nanaimo) significantly increase wood diversion for reuse.
- More eco-centres and ReStores boost clean wood diversion from landfills.



DILLON CONSULTING

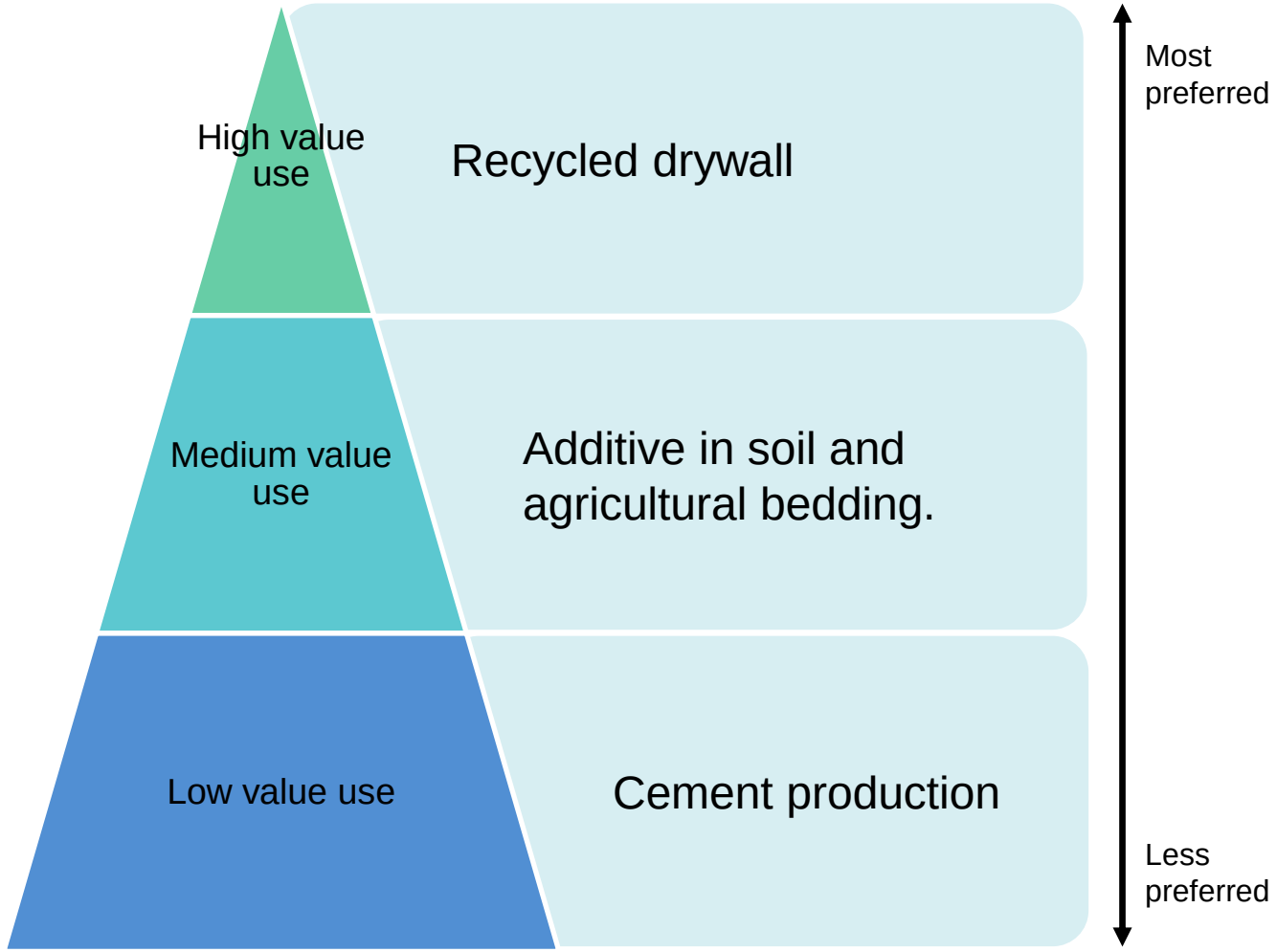
Drywall – National Overview

Current State

- Most waste drywall is disposed of across the country due to the lack of end markets, with exceptions in BC, ON and AB.
- Pre-1990s drywall is banned at waste facilities in BC to address asbestos hazards in renovation and demolition.

Factors Influencing Diversion

- Recycling cost is significantly influenced by the proximity to markets. Co-locating recyclers/processors with manufacturers, as demonstrated by New West Gypsum in BC, AB, and ON, reduces transport costs and exemplifies effective recycling of asbestos-free drywall.



DILLON CONSULTING

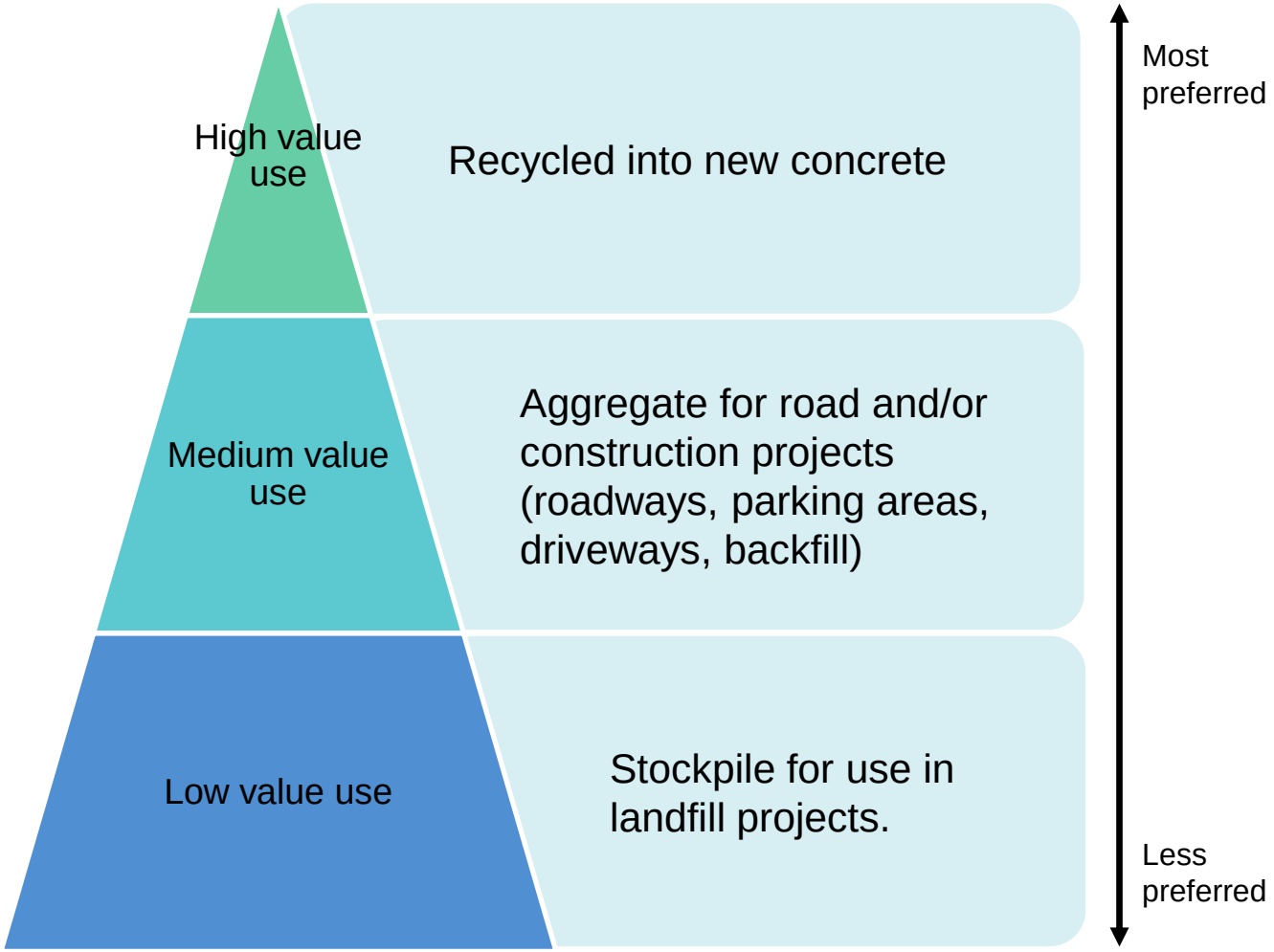
Concrete – National Overview

Current State

- Concrete is more often diverted than disposed nationwide due to its heavy weight, high volume leading to costly tipping fees, and its value as a recycled aggregate.

Factors Influencing Diversion

- Recycling concrete offers several benefits, including lower diversion costs, extended landfill life, and LEED options for construction.
- The purity of concrete (free from dirt or metal rebar) increases its chances of being recycled into aggregate and diverted from landfills.



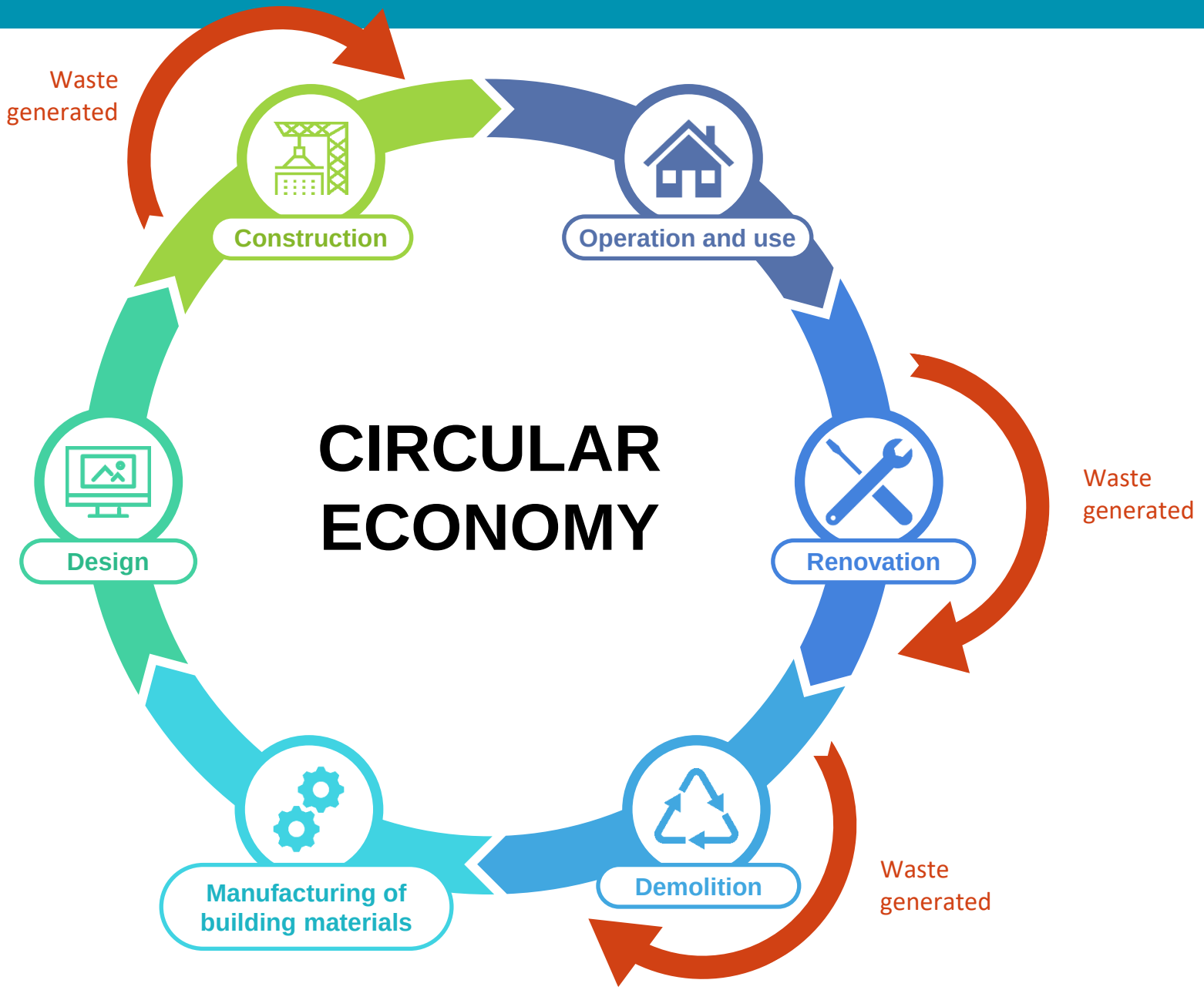
DILLON CONSULTING

Scrap Metal– National Overview

Current State	• Scrap metals are the most accessible and easy CRD material to divert nationwide due to their resale value. • Nationally, 2.9 million tonnes of scrap metal was diverted in 2019. • Overall trends found that many facilities accept scrap metal free of charge.
Factors Influencing Diversion	• There are active and long-established markets and cash value paid for scrap metals throughout the country; this is the highest value diversion pathway for scrap metal. • Distance to market is the main factor where scrap metal is not being diverted from landfill and recycled.
Best Practices	• When sufficient infrastructure and established markets are in place, we observe very little scrap metal going to landfill (e.g., Ontario). • In terms of what scrap metal is recycled into specifically, that is an information gap that would require further investigation with metal recycling companies.

DILLON CONSULTING

Circular Buildings: CRD Waste Management



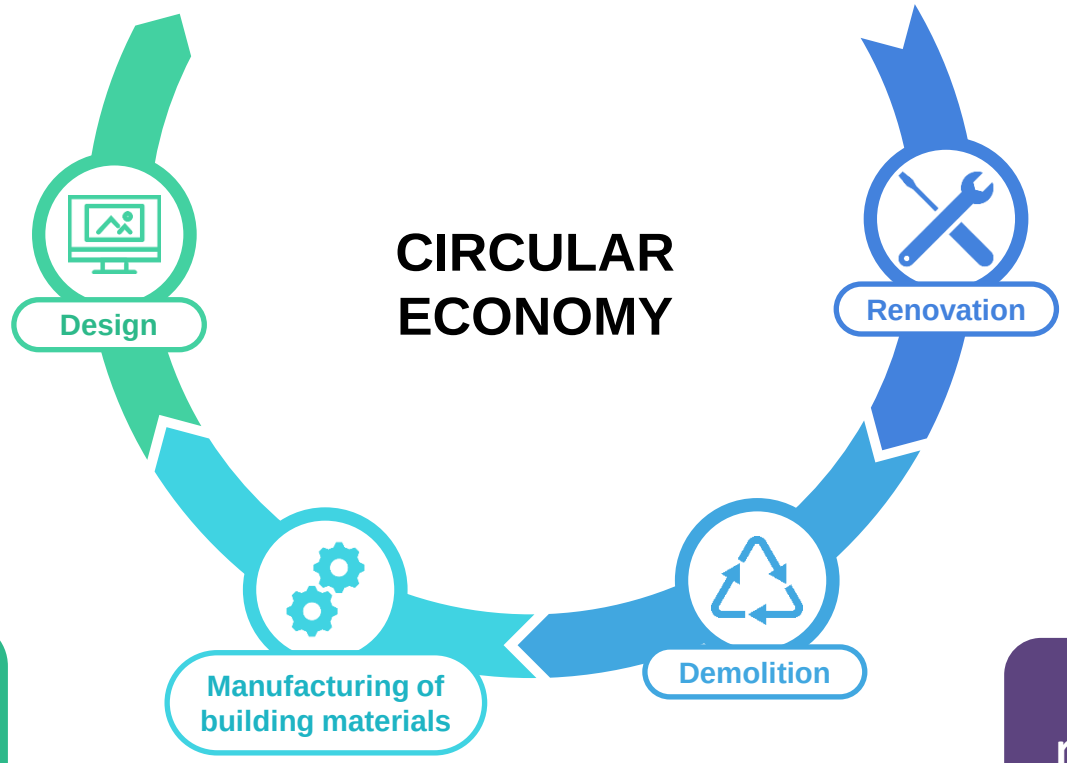
A new Circular Value Chain

Design with certified reclaimed, recycled building materials, DfD/A, Design for durability

Develop Green Procurements (Architectures, Engineers, Developers, Contractors, Insurance Companies)

Certify & re-grading secondary-use (salvage) materials to ensure their safety and effectiveness in structural use, other applications

Enable secondary markets for recovered materials by Resellers, Resource Exchange Platforms, etc.

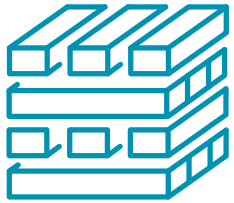


DILLON CONSULTING

Current Challenges for CRD Material Diversion

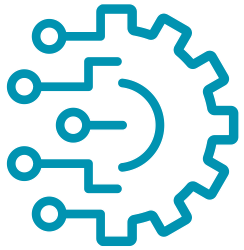
Lack of regulations and bylaws that supports diversion programs

Lack of public/private support to subsidize land or space for storage



Space required on site to sort materials for demolition, restoration companies

High transportation costs and low density and volume in rural regions



Inadequate infrastructure and proximity to end processors

Lack of certifications for secondary-use building materials

Lack of standards and building codes

DILLON CONSULTING

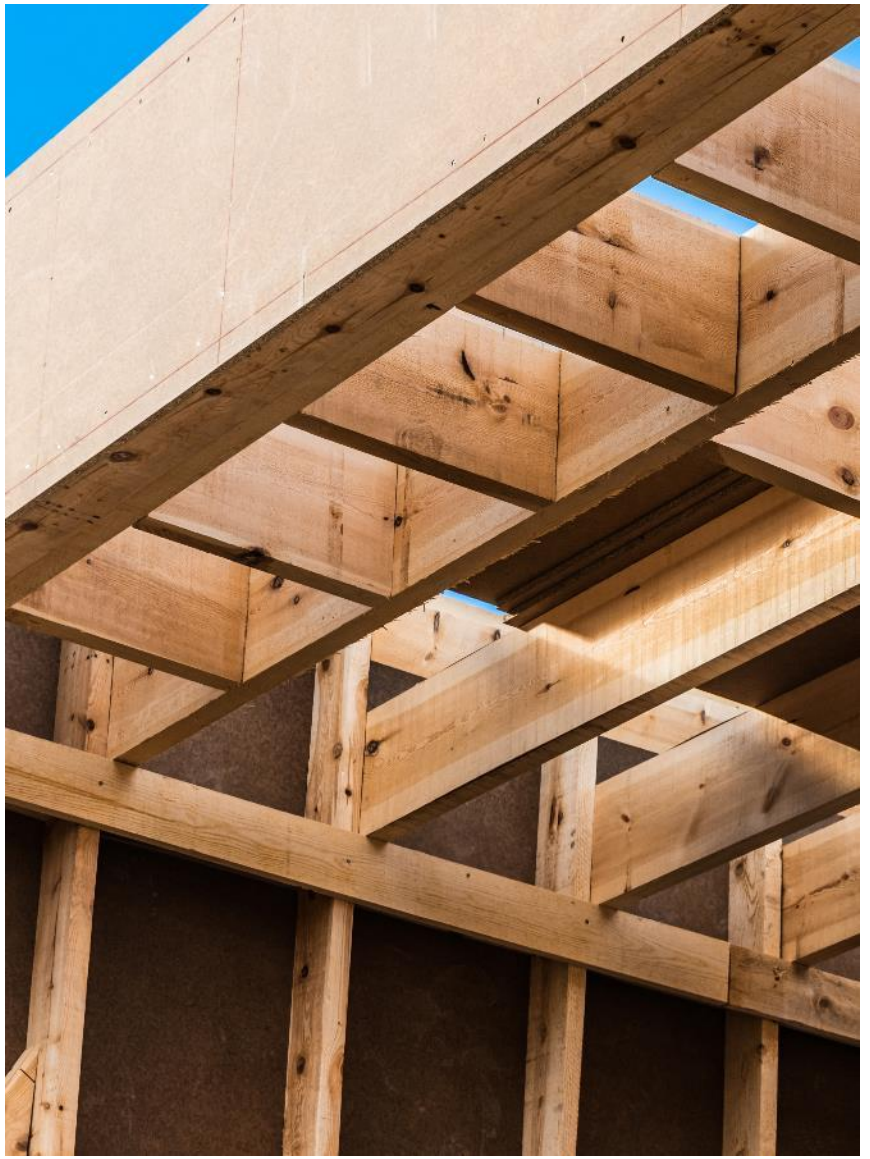
Current Drivers and Enablers for Material Diversion

Regulations and bylaws driving material diversion across the country

Providing ‘Reuse Recovery Centers

Green certification programs

Cost savings from avoiding disposal in landfills



DILLON
CONSULTING