A Proposed Material Cost Differentiation Methodology

Consultation Report

August, 2020

Material Cost Differentiation Project

Canadian Stewardship Services Alliance

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1 Introduction

The Material Cost Differentiation (MCD) Methodology is a new and innovative way to measure the cost impacts of materials on the recycling system. If approved, it will provide a significant input to setting fair and principle-based fee rates for the Recycle BC, MMSW, MMSM and Stewardship Ontario's packaging and paper product (PPP) recycling programs. Given that the MCD Methodology will produce this important input for fee setting, and therefore has significant impacts on all stewards, CSSA undertook a comprehensive consultation process with a wide cross-section of stakeholders to seek their input and answer their questions on the proposed methodology. This consultation report provides an overview of the MCD Methodology, the consultation process, stakeholder feedback, CSSA's responses to questions and concerns raised, and next steps for the MCD project.

1.1 Background on the MCD Methodology Project

In 2016 CSSA, in consultation with the producer community, developed a new fee setting methodology, known as the Four-Step Fee Methodology. Now in its fourth year, the methodology is principle-based and strives for fairness in setting fees for PPP for participating programs. The fee methodology is dependent on the quality of it inputs, chief among them the metric that reflects each material's unique impacts on the cost of recycling system activities. To date, this input has been generated by conducting Activity Based Costing (ABC) studies, but a number of factors have driven the need for a modernized approach: ABC's inability to satisfy steward priorities; ongoing challenges with regularly collecting data that is typically private and confidential; and the evolution of materials and recycling systems since ABC was created almost two decades ago.

In order to address these issues, the MCD project was initiated in 2017 to develop a new and better way to measure how PPP materials impact the cost of recycling system activities, taking into consideration each material's characteristics and the trends emerging in recycling technology and packaging design. The new methodology will produce a critical input to fee setting that is intended to replace today's ABC approach for the Recycle BC, MMSW, MMSM and Stewardship Ontario programs.

1.2 Governance and Development of the MCD Methodology

The MCD Methodology's development has been supported by a dedicated group of stewards who formed the Steward Consultation Committee (SCC). These stewards participated in a series of workshops beginning in 2018 and collectively represent all materials, as well as the interests and concerns of the wider steward community. SCC participants included the companies identified by their logos seen here.

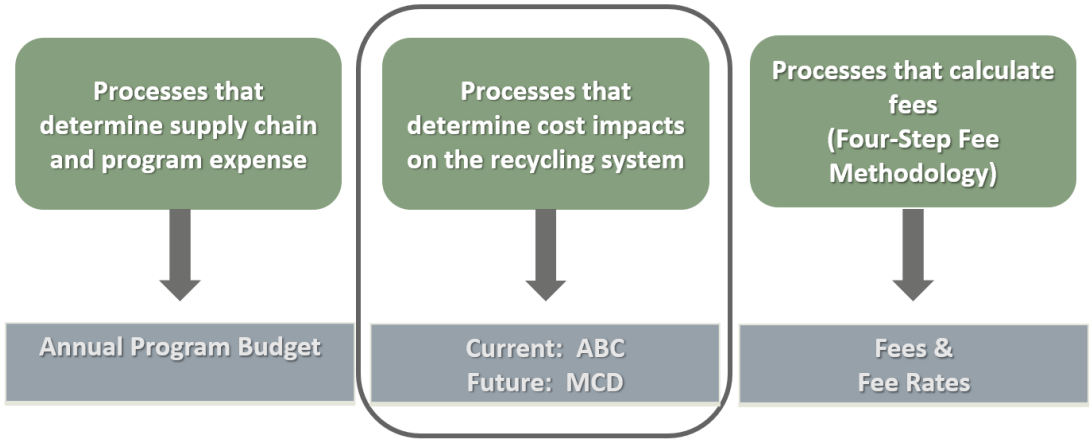
The project was also supported by CSSA staff, program leaders, industry subject matter experts and the lead consulting firm, Resource Recycling Systems (RRS). The work of the SCC was guided by a Steering Committee representing each of the program's Board of Directors. In January 2020 the SCC completed its work and along with the Steering Committee and program Boards of Directors, approved the MCD Methodology for consultation with the stakeholder community.

With the consultation process now complete, the MCD Methodology and this MCD Consultation Report will be submitted to the Boards of Recycle BC, MMSW, MMSM and Stewardship Ontario to approve the methodology's use in setting fees for their respective programs.

1.3 Overview of the MCD Methodology

Calculating the fees for each PPP program involves three distinct sets of activities: 1) setting the program budget; 2) determining material cost impacts on the recycling system; and 3) calculating fees and fee rates, as illustrated in Figure 1 below.

Figure 1 – Three distinct sets of processes for fee setting



The MCD Methodology applies to and supports the second set of activities, (i.e., measures material cost impacts in the recycling system), and, if approved, will replace current Activity Based Costing. In turn, the MCD Methodology's results will provide the key input to the third process set seen here -- calculating fees and fee rates.

The MCD Project's objective was to develop a methodology that:

1. Differentiates the cost impacts to manage each material in a recycling system in a manner that reflects the impact of the material's characteristics on the system;
2. Is clearly articulated and supported by procedures that are easily replicated;
3. Is based on defensible assumptions; and
4. Generates results that are sound and comparable over the long term.

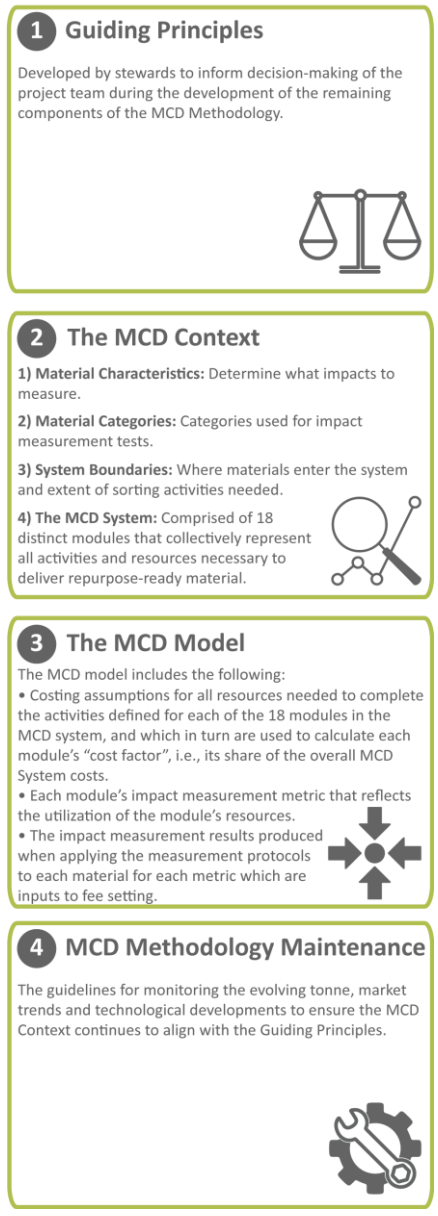
The MCD Methodology has four components as illustrated below.

1) **Guiding Principles:** Created by stewards, these principles informed decision making when developing the remaining components of the MCD Methodology.

2) **The MCD Context** provides the assumptions, definitions and concepts necessary for the MCD model to successfully measure and calculate cost impacts. The MCD Context consists of four key elements: 1) material characteristics and the impacts to be measured; 2) material categories are identified and used to measure material cost impacts; 3) system boundaries that demarcate how materials enter the system and the extent of sorting activities needed; and 4) the conceptual MCD system, that is comprised of 18 distinct modules that collectively represent all activities and resources needed to deliver repurpose-ready material.

3) **The MCD Model** consists of the costing assumptions, impact measurement metrics, and measurement protocols used to calculate each material category's cost impacts, which informs fee setting.

4) **The Maintenance Procedures** that instructs how to monitor the evolving tonne, recycling processes and technology and their costs to ensure that the MCD model itself can change over time to stay in step with the marketplace.



2 Consultation Process

The MCD Methodology will produce a key input to the fee setting process and therefore warrants extensive engagement with the PPP programs' stakeholder community. In addition to the work carried out by the SCC in the MCD's development, CSSA managed a consultation with stakeholders through an extensive process that ran from June 9th through to the close of the comment period on July 23, 2020, and included an information webinar held on June 25, 2020. The full range of stakeholders across the PPP supply chain, representing all sectors and materials, was invited to participate. In addition, as part of its Blue Box Program Transition Plan consultations, Stewardship Ontario separately consulted with stakeholders on implementation of the Four-Step fee methodology and adoption of the MCD Methodology. Participants in the Stewardship Ontario consultation were encouraged to visit CSSA's dedicated MCD webpage for detailed information on the MCD methodology. Consequently, CSSA received feedback from stakeholders via two consultation processes. A summary of the feedback received via both consultation channels is provided below.

2.1 Stakeholder Engagement

Stakeholders were notified of the opportunity to learn more about the MCD methodology and provide input or questions through a series of communications and a dedicated page on the CSSA website. They were distributed to the full range of stakeholders representing all sectors across the recycling supply chain including material suppliers, waste management organizations, Ontario municipalities, recyclers, producers and their trade associations. CSSA engaged the stakeholder community via email notifications, an information session on June 25, 2020, and one-on-meetings as requested, with supporting resources available on the dedicated webpage.

2.1.1 Communication and Education

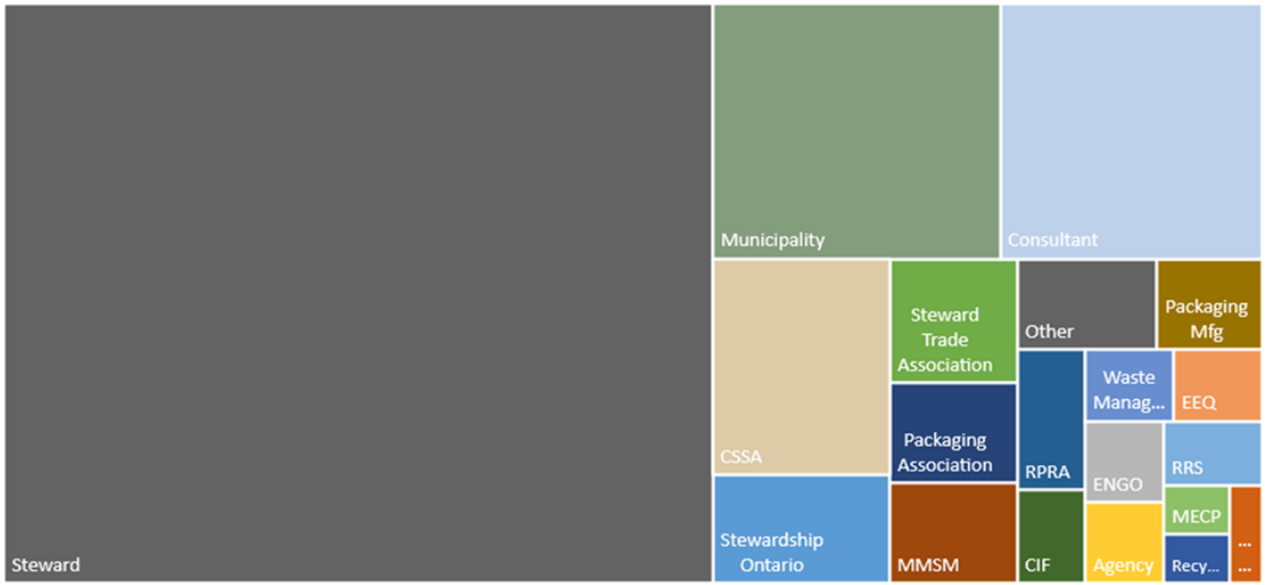
The following emails were distributed to stakeholders:

- The invitation to the MCD Methodology consultation webinar on June 25, 2020 was sent to over 5,300 individuals. The invite and reminders were sent on June 9, 18 and 23, 2020.
- Following the June 25, 2020 webinar, a notice was sent containing links to the webinar recording and the presentation slides; a reminder of the specific questions for which CSSA requested input, and the feedback submission deadline.
- An email on July 13 again reminded stakeholders of the availability of the above-mentioned resources, the deadline to submit comments and the availability of the Q&A document from the webinar.

2.1.2 MCD Methodology Webinar

On June 25, 2020 CSSA hosted a webinar to introduce stakeholders to the MCD Methodology and answer questions. Participation in the webinar was high with 406 registrants and 212 participants representing a good cross-section of sectors along the recycling value chain as illustrated in Figure 2. More than half of webinar attendees were from 115 steward organizations and those stewards in turn represented 41% of total fees paid, across all four PPP programs.

Figure 2: Webinar Participants



During the webinar, CSSA reviewed with stakeholders:

- Project development and governance
- The MCD Methodology and its outcomes
- How the methodology impacts fees, fee rates and stewards
- Consultation questions, timelines and how to submit comments and questions
- Next steps

A recording of the webinar and the presentation are available here.

2.1.3 Consultation Resources

CSSA created a dedicated page on its website that contains a variety of resources aimed at improving stakeholders' understanding of the proposed MCD methodology including:

- Video: An introduction video explaining the need for a new material specific costing model.
- Project update notices were distributed on a quarterly basis throughout the project's lifecycle.

- A pre-read consultation document was distributed prior to the webinar that outlined the MCD Methodology in detail with a full explanation of its development, how it works and how it feeds into the fee setting process.
- Summary Document: An abridged description of the methodology, along with its key features and benefits, was sent to stakeholders prior to the webinar.
- A fee calculator comparison tool was available immediately following the webinar. It enables producers to compare material fees using the current Four-Step/ABC Fee Methodology[1] with the new Four-Step/MCD Fee Methodology based on the relevant 2020 program fee schedules. Note that it cautions stewards that the tool is designed to provide only an order of magnitude variance in fees, as there are many other data inputs used to calculate fees that differ from year to year.
- Q&A Document: CSSA received questions during the consultation period and frequently updated the Q&A page. A list of all the questions and answers is also available as Appendix A to this report.

Access to these resources culminated in 979 visits to the MCD webpage and the following number of downloads:

- **Webinar recording:** 23
- **Webinar presentation PDF:** 166
- **Pre-read consultation document:** 412
- **Overview document:** 348
- **Q&As:**
  - V1 (posted June 30): 25
  - V2 (posted July 13): 20
  - V3 (posted July 21): 5
  - V4 (posted July 23): 3
  - V5 (posted July 24: 17
- **Calculator tools:**
  - Recycle BC: 100
  - MMSW: 48
  - MMSM: 50
  - Stewardship Ontario: 119

2.1.4 One-on-one Consultation Meetings

In addition to the webinar, CSSA met with individual organizations upon request. CSSA thanks FCPC, RCC and CBA for reviewing an early version of the MCD presentation and providing valuable feedback on how to tell the MCD story. CSSA met with Restaurant Canada and 22 of its member companies

[1] For Stewardship Ontario, the fee calculator comparison tool compared the 3-factor formula/ABC to the Four-Step/MCD

to discuss the MCD Methodology and answer questions relevant to the restaurant sector. CSSA supported Stewardship Ontario at a meeting with representatives from the Ontario municipal community to review the MCD Methodology. CSSA also held individual meetings with the Canadian Beverage Association and the Carton Council of Canada to discuss questions related to the impact of the methodology on the materials most commonly used by their members.

3 Stakeholder Feedback

CSSA received feedback on the MCD methodology through two channels:

1) CSSA MCD Methodology consultation process; and
2) Stewardship Ontario Blue Box Program Transition Plan consultations.

3.1 Summary of Feedback to CSSA's MCD Methodology Consultation

CSSA posed the following four questions to help frame feedback:

1. Do you agree that the MCD Methodology is sufficiently principle-based, fair, defensible and comprehensive? If not, why not?
2. Is it clear how the MCD methodology will be applied and how it will contribute to fee setting?
3. Did you find the pre-read and other project materials helpful and will you be able to use them to brief your colleagues? If not, what additional materials would be helpful?
4. What else do you want to tell us about the proposed Material Cost Differentiation Methodology?

The following organizations provided feedback as part of the MCD consultation:

- Home Hardware Stores
- Loblaw
- Procter and Gamble
- Saputo
- Andrew Pollock Environmental
- Val de Raymond Water
- Staples
- My Green Planet
- V Tech
- Retail Council of Canada
- Federated Co-operatives Limited
- Carton Council of Canada
- Food & Consumer Products of Canada
- Restaurants Canada
- News Media Canada

CSSA received the following feedback to its questions. See Appendix B for respondents' detailed feedback and CSSA's responses.

Do you agree that the MCD Methodology is sufficiently principle-based, fair, defensible and comprehensive? If not, why not?
The majority of respondents who answered this question indicated that they agreed that the MCD methodology is principle-based, fair, defensible and comprehensive. One steward-respondent suggested that the MCI could be helpful to those engaged in the Circular Economy "to compare materials and allow for future modifications". An exception, within the steward community is News Media Canada, representing newspaper publishers. It is concerned about the impact that the MCD Methodology will have on fees for newsprint. Their questions, together with CSSA's responses are provided in Appendix A to this report. Details of their submission are also provided in Appendix B.

Is it clear how the MCD methodology will be applied and how it will contribute to fee setting?
The majority of respondents who answered this question indicated that they felt it was clear how the MCD methodology will be applied to the fee setting process.

Following the June 25 MCD consultation webinar, CSSA posted fee calculator tools for each of the four PPP programs it supports. The tools provide stewards of each of the programs with an order-of-magnitude variance in fees by comparing each program's current approach with the new approach, based on 2020 inputs. Download statistics for these tools (see above) indicate that they were popular.
Some members of the steward community expressed concern that the potential for fee increases for some materials may be difficult for stewards to absorb all at once, particularly in light of the challenges presented by the COVID-19 pandemic. The Retail Council of Canada suggested that it may be beneficial to conduct a staged implementation of the MCD Methodology to mitigate its impacts. This suggestion is highly appreciated and will be carefully considered.

Concern was also expressed about the potential complexity, timing and administrative burden associated with changing stewards' reporting categories to align with the more granular material categories of the MCD Methodology. It is CSSA's intention to initiate a project to explore if steward reporting categories should be aligned with MCD material categories because precision in the categories contributes to the fairness of the MCD Methodology and resulting fees. To that end, CSSA is planning a harmonization project that will examine the existing reporting categories. We will request steward participation in the project. Timing and potential complexity of implementation will certainly be part of that work and all efforts will be made to minimize administrative burden to stewards, while staying true to the principles of the MCD Methodology and the Four-Step Fee Methodology.

Did you find the pre-read and other project materials helpful and will you be able to use them to brief your colleagues? If not, what additional materials would be helpful?
The majority of respondents who answered this question agreed that the pre-read materials were helpful and the resources provided were adequate.

What else do you want to tell us about the proposed Material Cost Differentiation Methodology?
In response to this question, a number of respondents indicated their support for the adoption of the MCD methodology. Some respondents, while recognizing that their comments were out of the MCD Project scope, took the opportunity to express their concern about rising stewardship costs in

general. Other respondents underscored their concern that difficult-to-recycle materials be attributed their fair share of costs. (The MCD Methodology ensures that all obligated materials are attributed an MCI value whether or not they are actually collected in individual recycling programs.)

3.2 Summary of Feedback to Stewardship Ontario's Blue Box Program Transition Plan Consultations

Stewardship Ontario held its Blue Box Program Transition Plan consultation webinars on June 16th and June 17, 2020. As part of those sessions, Stewardship Ontario asked for feedback on implementation of the Four Step Fee Setting Methodology and the Material Cost Differentiation Methodology. Stewardship Ontario asked stakeholders two specific questions to help frame stakeholder comments:

1. Should Stewardship Ontario proceed with the implementation of the Four-Step Fee Methodology?
2. Should Stewardship Ontario replace Activity Based Costing (ABC) used for allocating system costs with Material Cost Differentiation (MCD)?

Stewardship Ontario received seven MCD-related questions during its webinars. They are available on the Stewardship Ontario Program Transition Plan Consultation Q&A page here (please see questions 12, 46-50 and 67) and are also included in Appendix A of this report. In addition, Stewardship Ontario received submissions from the following organizations that contained feedback on the MCD Methodology, as follows:

- Carton Council of Canada
- Electronics Product Stewardship Canada
- City of Hamilton
- Lutron Electronics Company Inc.
- Retail Council of Canada
- County of Simcoe
- City of Toronto
- Joint submission from: City of Toronto, AMO, Regional Public Works Commissioners of Ontario and municipal Waste Association
- Canadian Beverage Association
- Canadian Consumer Specialty Products Association
- City of Ottawa
- News Media Canada
- Food & Consumer Products of Canada

A summary of feedback to Stewardship Ontario's MCD Methodology questions is provided here. See Appendix B for all comments and responses.

1. **Should Stewardship Ontario proceed with the implementation of the Four-Step Fee Methodology?**
2. **Should Stewardship Ontario replace Activity Based Costing (ABC) used for allocating system costs with Material Cost Differentiation (MCD)?**

Stakeholder responses to these questions reflect a difference in perspective between the Ontario municipal sector and the steward community. Municipalities are concerned about the implications for in-kind payments if the Four-Step Fee Methodology and the MCD Methodology are implemented in Ontario because in-kind payments to municipalities would increase by almost $3.5M when comparing the outcomes using 2020 inputs and the cash payment would decrease by the same amount.[2] While the Material Cost Index value for newsprint is relatively low, (it ranks sixth on an index of 36 material categories) new measurement metrics, protocols and full costing for all obligated materials means that the MCD Methodology, together with the Four-Step Fee Methodology, shifts additional cost to newsprint. Municipalities and the City of Toronto argue that now is not the time to change the fee calculation methods because Stewardship Ontario is transitioning to wind-up of its program by 2025.

Alternatively, most steward organizations are supportive of implementing both methodologies in Ontario, although they too are concerned with resulting cost shifts (both increases and decreased, depending on the material) and suggest a phased implementation approach. They support adoption of both methodologies because it represents a harmonized approach to fee setting (Stewardship Ontario is the only CSSA-supported program that has not yet adopted the Four-Step Methodology). They recognize that the MCD Methodology is an improvement over the three-factor formula because the former is principle-based, better reflects the current state of technology and materials in the marketplace and provides a clearer, more comprehensive and transparent way to assess the cost impacts to manage each material in the recycling system.

3.3 Next Steps

CSSA would like to thank everyone who took the time to participate in the consultation and provide comments. All feedback received during the consultation period and contained in this consultation report will be submitted to the Boards of Directors of Recycle BC, MMSW, MMSM and Stewardship Ontario for consideration at their September board meetings. The Boards will carefully consider all stakeholders comments and concerns when deciding whether to approve the MCD Methodology. If approved, the intention is to use the Material Cost Index (MCI) as an input when setting 2021 fees.

[2] Based on 2020 inputs, in-kind payments from newspaper publishers would increase by $3.5M. 2020 fees calculated using the Three Factor Formula and Activity Based Costing (density and composition updates only) result in municipalities receiving $4.9M in-kind (i.e., newspaper advertising lineage in lieu of cash) and $130.3M in cash payment for recycling packaging and printed paper. Had 2020 fees been calculated using the Four-Step Fee Methodology and the MCI input, the In-Kind portion would have been $8.4M and the cash payment to municipalities would have been $126.8M.

Appendix A: Stakeholder Questions and Answers on the MCD Methodology

#	Question	Answer
1.	How does the MCD account for differences in labour and capital needs based on the varying mix of materials across the four packaging EPR programs?	The MCD Methodology is focused on measuring the impacts that materials have on a standardized conceptual MCD recycling system so that all material impacts are measured on a level-playing-field basis. As stated on Page 8 of the pre-read document, setting the fees for each program consists of three distinct sets of activities. The MCD methodology supports the second set of activities, which is to determine each material's impact on the cost of the recycling systems as compared to all other materials. It is the first set of activities, the process by which annual budgets are set, when provincial programs costs are determined, that accounts for differences in labour and capital needs for the varying programs. It is the third set of activities of calculating the fees, that accounts for the varying mix of material supplied and managed for each program given that Step 1 of the Four-Step Fee Methodology requires that each material's relative share of gross cost considers both its cost impact value (the MCI) and the quantities of materials supplied and managed.
2.	Will there be a set of MCI values specific to each of the four jurisdictions (ON, BC, MB, SK), in order to reflect differences in material mix?	No – expanding on the information above, the MCI represents a material's impact on recycling system resources defined for a standardized conceptual MCD system so there will be one Material Cost Index used by all four participating programs. As noted above, it is the first and third process that accounts for provincial differences.
3.	Given that about 50% of the tonnes collected in Ontario are collected in a two-stream bin program and that BC also has a significant number of two-stream programs, what is the impact on the accuracy of the MCI?	The MCI is not attempting to replicate the Ontario recycling system. This is a fundamental departure from the principles of the ABC methodology which attempted to replicate the cost of particular systems and then allocate the costs of participating study programs to materials or the commodities in which they are sorted. This resulted in different cost/tonne for each provincial program, reflecting the different mix of study programs. The MCD methodology is focused on the material and its characteristics rather than individual and varied system designs. The system design and other provincial system design differences are accounted for in process #1 illustrated above.
4.	Could you indicate what the CPS assumes in terms of how cartons are prepared by consumers for recycling? Will the CPS be	As it does for all materials, the CPS assumes that Cartons are placed into the collection cart clean and dry, free of all residual product. They are not modified by the consumer before being placed with other materials in the cart, e.g. they are not densified, broken down into a 2-dimentional format or

#	Question	Answer
	updated and if so, how and at what frequency?	dismantled and they are not aggregated or nested. The CPS is silent on the handling of closures, i.e. caps may be on or off, but the expectation is that straws from drinking boxes would be removed from the package. The impact measurement protocols, e.g. various density measurements, exclude any materials that obviously did not conform to the CPS, e.g. if they contained residual product. The CPS is part of the MCD methodology context, specifically the system boundary conditions. While evolution of the system is expected to take place within a three to five-year timeframe, the system components and boundaries, including the CPS will be monitored annually. Updates would be guided by factors such as technological innovation and emerging technologies, consumption preferences, end market specifications, etc.
5.	Can you confirm how cartons are managed between the QC Manual Sort/Mixed Paper Module and the Optical Sorter Module? Are all cartons assumed to be recovered into a PSI-52 grade? Or is a proportion of cartons assumed to be recovered with Mixed Paper#54?	The MCD System and its boundary conditions are conceptual and standardized to all materials and jurisdictions. Using current or emerging technologies, all materials that can be, are sorted to a repurpose ready condition and all resources necessary to do this are accounted for. Cartons are assumed to be sorted optically and all recovered cartons are directed to the emerging Polycoat bale. The majority of the cartons are recovered by the primary optical sort module, Module #8. A portion of the cartons entering the system flow with the mixed paper stream because their characteristics are such that they cannot all be separated from the other fibre materials by the screens. This happens because they may be flattened during collection and behave like the fibre materials, or their light weight causes them to be entrained with the fibre. The portion of cartons that flow with the mixed fibre are therefore recovered in the QC Optical sort – Mixed Paper, Module #10. Therefore, Cartons have the combined mechanical sorting impacts from utilizing the resources of both these modules.
6.	What is an Emerging Grade and why has the MCD not used the ISRI Grade 52, which is a recognized grade?	To be repurpose ready, a material must be “prepared to meet the specification of an entity that will repurpose it without further sorting beyond general cleanup of prohibitive and undesirable materials using commercially available equipment that is not generally employed in MRFs.” The repurpose ready commodity specified for each material was determined through a standard set of criteria applied to all materials. The criteria considered the standard industry practice that either meets an established repurpose ready commodity specification (e.g. ISRI grade 52) or uses an emerging industry practice that meets an

#	Question	Answer
		emerging repurpose ready commodity specification when the predominant practice is declining. An emerging repurpose grade is one that has been successfully implemented in commercial applications. Recently, the predominant industry activity has been to sort cartons (ISRI grade 52 - aseptic and gable top) from other polycoat materials, but as pressure to repurpose other polycoat materials increases as well as the prevalence of optical sorting targeting all polycoated paper material, this sort is being displaced and mills are accepting the polycoat mix.
7.	Can you clarify the difference between Paper laminates and Polycoated Paperboard, and clarify which is included and which is excluded using examples (i.e. frozen food trays, cold drink cups)?	Polycoated Paperboard includes coated paper packaging used to package frozen foods such as ice cream and other food products and polycoated hot and cold drink cups. These are included for collection and sorting and repurposing in the MCD System. Paper Laminates includes packaging in which paper is the main component, and which may include metalized foil, wax or plastic coating, and other coated paper. They are typically flexible packaging and may include multi-layer bags with a poly-film, kraft or other paper layers in packaging. They are not included for collection, sorting and repurposing in the MCD System, but they still are assigned cost impacts according to their characteristics. As they are not repurposed, they would not share in the revenue in Step 2 of the Four-Step fee setting methodology.
8.	Can you provide the Relative Impact Factors (RIF) and Cost Factor (CF) values associated with all the material categories under the different modules?	We agree that understanding cartons' relative impacts in each of the relevant modules could be helpful to Carton Council and its members to understand where cartons' highest cost impacts may reside. However, providing you with RIF and CF values will not provide the kind of meaningful information you're seeking. Instead, CSSA recommends that a meeting be arranged with Carton Council and its interested members, sometime over the next couple of months, when CSSA can take you through in some depth how cartons behave in the various modules that make up the MCD conceptual system. Such a meeting is sure to foster an interesting and fulsome discussion.
9.	Why are aluminum cans called "used beverage container"? Could they be called "aluminum beverage container" to avoid confusion?	The MCD category 'Used Beverage Containers' is used to reflect the ISRI Scrap Circular Specification grade called "Baled Aluminum Used Beverage Can (UBC) Scrap" or Baled UBC for short. Because this grade can only be comprised of aluminum beverage cans, and not any other aluminum containers, the project team thought it was important to model the category name after the ISRI specification. However, given the potential for confusion and the fact that only one other MCD material category refers to materials in their post-consumer format, i.e. Used Beverage Containers (UBC) and Old Corrugated Cardboard (OCC), we will take into consideration your suggested name change going forward. As noted in the presentation deck, we will be initiating a full review of Material Categories in

#	Question	Answer
		our next harmonization project and will do so at that time.
10.	In appendix E, UBCs (aluminum cans) are marked down as "manual, primary and secondary" sorting. Aren't aluminum cans sorted with an eddy current?	Yes. You will note that Appendix E identifies both Used Beverage Containers and Aluminum Foil and Other Aluminum Containers as the only two materials that utilize the 'Electromagnetic Sort' module. This is module #9 in the MCD system. You are correct that this is also referred to as sorting by 'eddy current'. However, while not practiced in all MRFs, the predominate practice for repurposing and gaining value from aluminum packaging from recycling systems in North America is to sort used beverage containers from other aluminum packaging. This requires a secondary manual sort. Because of the tendency of aluminum used beverage containers to flow with other materials because of their light weight and because of their tendency to change shape (flattened, and therefore may go over the fibre screen in the MCD System), additional quality control sorting activities are required not only to ensure that used aluminum beverage containers are recovered to the degree specified by the MCD System, but also to ensure other materials can meet their specifications for repurposing. This additional sorting ensures that AL UBC satisfies Guiding Principle #4 – for it and other materials to become ready to be repurposed. For additional context, the electromagnetic/eddy current sort associated with AL Used Beverage Containers represents less than 10% of its MCI value whereas the secondary sorting and QC related sorts, just over 10%. The major contributor to this material's MCI value is related to the Collection module (collection truck) where approximately 50% of its MCI value is assigned. In this module, the UBC has the 3rd highest MCDI (Module Cost Differentiation Index) value because UBC has a low compacted density relative to other materials, thus it takes up relatively more space in the collection vehicle and has a higher impact on this significant module.
11.	Most members expected glass packaging to be higher on the material cost index due to its abrasiveness and damage to equipment. Why is it so low on the material cost index?	When considering each of the Cart,-Collection, Infrastructure and Storage modules, which together represent approximately 75% of the MCD system costs, Glass has the highest density. In the Cart Module its density is second only to Magazines, Catalogues and Directories. Its high density means a lower impact on the resources of these modules relative to other materials. In addition, the MCD system is designed to deliver on the guiding principles outlined in Section 7. To adhere to these principles, including consideration of 'emerging trends', the MCD system's design includes a Glass Separation module (Module 6) and this module's impact is fully attributed to Glass and represents approximately 20% of its overall MCI value. Further, as you note, Glass does have abrasive and damaging characteristics (what we call 'Impeding and Damaging Characteristics'). In Module 17, the 'Abrasiveness' module, Glass assumes almost 90% of the cost impacts of this module. Steel containers

#	Question	Answer
		and AL UBC are attributed 8% and 4% respectively. The Impeding and Damaging Characteristics module for abrasiveness, Module 17, represents just less than 5% of the MCD system cost, i.e. a significant cost for primarily one material, such that its MCDI reflects just less than 50% of the value of glass within the MCI. Thus, it's MCDI respects both the impact and the cost so that high impacts on low cost modules are not overstated. This, of course, works both ways and ensures that materials with low impacts on high cost modules such as the Cart, Collection and Infrastructure Modules are not understated.
12.	Some members have questioned why PET water bottles and PET beverage bottles are high on the material cost index above cartons, PP containers and PVC. Could you let me know why PET bottles rank where they do, so I can communicate that back to CBA members?	While PET beverage and water bottles are regarded as highly recyclable within recycling systems because they are numerous and have a relatively high value, the cost impacts of PET bottles are higher than cartons, PP containers and PVC. This is primarily because of their generally lower density (higher impact since they take up more space), in the Cart,- Collection and Infrastructure modules, which together make up over 70% of the MCD System cost. Moreover, like PP, PVC and Cartons, PET water bottles tend to be misdirected and flow with other materials such as mixed paper and therefore require additional QC sorting to ensure recovery and to ensure all materials meet repurpose specifications. The light weight of water bottles results in a higher impact in these related QC sorting activities.
13.	Although MCD's purpose is not to address STINO, what is CSSA doing to address STINO and e-commerce packaging?	You are correct that MCD does not address STINO nor e-commerce but both issues are important and complex and are addressed through various initiatives. We'll address each separately. STINO (Stuff That is Not Ours): STINO is a term that we use to describe things like non-obligated materials that resemble obligated materials that find their way into the Blue Box (e.g. bound books and packaging-like product) as well as materials that are supplied by non-obligated producers (e.g. Magazines shipped direct to the resident from out-of-province and out-of-province companies selling products and their associated packaging directly to residential consumers) or materials from producers below the de minimis thresholds. In addition, we include contaminants as STINO – things such as plastic toys and other non-targeted materials. The approaches to managing STINO will differ for each PPP program and are influenced both by the regulatory environment as well as the level of control the stewardship program has over the recycling system itself. Where the program has control of the collection service standards and composition data such as Recycle BC, the program actively works with its collection partners to reduce contamination. You can read examples of the success of these initiatives on page 24 of the Recycle BC 2019 Annual Report.

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		e-Commerce: This is a global challenge and CSSA is actively researching solutions to the e-Commerce problem (mainly associated with out of province vendors selling and shipping directly to residential consumers). We have undertaken a three-part research project on the impact of e-commerce on EPR programs and potential policy, financial, regulatory, and other approaches to address it. Phase One, a global literature review, has been completed and Phase Two and Three are expected to completed later this year. Phase two calls for in-depth interviews with key Canadian stakeholders and Phase three will provide recommendations on how to minimize or solve or the issue. In addition, we are currently completing a backgrounder report based on the Phase One research that provides eight potential approaches to address e-commerce in EPR programs that have been implemented or considered in Europe and the pros and cons of each approach. That report will help inform Phases Two and Three of our research project.
14.	Could you please provide some specifics on the MCD Methodology for pizza boxes?	Pizza boxes may be covered by two MCD material categories: Large Format OCC and Small Format OCC - depending on the size of the pizza box. The reason there are two MCD categories for OCC is because its size impacts how it moves through the MRF and the resources utilized to move it from collection to preparing it to be repurposed. While two OCC material categories are important for assessing costs in the MCD model, both Large and Small format OCC map to one fee setting category in the PPP programs. Overall, when the impacts of Large and Small Format OCC are measured through the MCD system they are determined to have a lower than average measured impact compared to other materials. This is generally due to the material's higher than average median density reducing its impact particularly during compaction on the collection truck (a new metric measured under MCD but not measured as part of ABC). OCC also has a relatively low sorting impact – also a new measure under MCD. While the ranking in the MCI is relatively low, the relative value of OCC within the MCI is slightly higher than the relative value within the range of cost/tonne from past ABC studies. This is because of the measured impacts for other materials using the new metrics. For example, the impact of compaction on the utilization of truck space also benefits many other materials that are compressive, e.g. PE Film and Bags. Given that both the MCD methodology and the fee methodologies are allocating impacts and budgets to all obligated materials on a 'relative share' basis, this means that a reduction in one material will necessarily create an increase in others. The relatively low MCI value of Large and Small Format OCC (versus other materials) on the MCI means a lower impact on the cost of the recycling system. However, please be aware that a lower MCI value

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		does not automatically translate into lower fee rates as the MCI value is only one of many inputs into the fee setting methodology. The quantity of material supplied and managed also impact Step 1 of the Four-Step Fee Methodology. In addition, the fee rates for OCC will be different in different programs due to each program's unique features such as full producer responsibility versus shared cost programs, quantities supplied and collected and other factors.
15.	As I understand it, the MCI is a factor in fee setting. Going under the assumption that well-established materials with unvarying characteristic/composition will consistently have the same material impacts that were determined in the system, will the MCI then have a constant value? In line with this, should we only expect MCI changes for new materials or materials that require further research and development?	It is generally correct that well-established materials with unvarying characteristics and composition would have a more or less constant relative value within the MCI. However, we know that material characteristics and composition within a material category can vary from year to year. For example, as the form and density of PET thermoform packaging varies, this could impact the resulting MCI measurements for the PET Thermoform category. This variation would be captured in the measurements and resulting inputs to the MCI calculations. In addition, changes to the packaging and printed materials supplied by producers, such as light-weighting or material substitution would also be expected to result in some variation to inputs in the MCI calculations. While the changes are not expected to be dramatic year over year, some minor variation should be expected. It is also important to recall that even when the material's value on the MCI is constant, that does not suggest that the fee rate will be constant year over year. The reason is that the MCI is one variable when calculating the material's relative share of the Gross Cost in Step 1 of the Four-Step Fee Methodology. The other variables include supply quantities, collected/managed quantities, and the program's budget.
16.	With an aim of lowering their remittances and helping create a more efficient system, how should stewards use the MCI in decision making when it comes to packaging selection, or should they not?	The MCI provides information about the relative cost impacts of materials on the recycling system such as how much does Material A impact costs compared to Material B and at what point in the system does it have those impacts? While this is an important input to the Four-Step Fee Methodology, it pertains only to Step One of the Methodology, i.e., the allocation of gross cost. Therefore, we do not recommend that it be used as the only indicator when making packaging choices because it is only one input to fees. The goal is to provide stewards with information about these cost impacts so that they have confidence in the MCI and therefore confidence in the fees that result.
17.	The pre-read document made reference to design assumptions that all programs are based on cart or commingled" collection. Our municipality (like many others) utilizes a two	The MCD conceptual recycling system includes the complete set of activities and technologies that collectively constitute a comprehensive, fully optimized, fully maintained system, that, operating at its highest level and efficiency, produces output material that is ready to be repurposed. As such, it establishes a common "level-playing field' set of conditions that enable all materials' cost impacts to be

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	stream (container/ fibre) system and the existing MRF infrastructure is designed for separate stream processing. Does this imply that all Ontario municipal programs will be transitioning from a blue box(es) system to a single stream cart-based system? If so would all related costs (collection containers, vehicles, MRF infrastructure) be 100% covered by stewards under full EPR program (post 2023)? Do municipalities have any say should they wish not to see carts deployed throughout their community?	consistently measured. Therefore, by nature and design, it does not reflect any particular municipal recycling program. While the conceptual system is rooted in real world recycling technologies and processes it is used only to determine relative cost impacts and has no bearing on particular collection systems, processes or technologies used by individual municipalities. Further, no municipality is expected to adjust their recycling system based on the design of the conceptual system used to determine the MCI.
18.	Collection module assumes single stream. What if collection was fibres and containers rather than commingled?	Please see answer above.
19.	What does the category 'used beverage containers' refer to in the MCI? Does it refer to aluminum beverage containers only?	Used Beverage containers include: aluminum sealed rigid beverage containers used for alcohol and spirits, carbonated beverages, juices, sports drinks, water and energy drinks.
20.	You mentioned that currently, aggregation of fee categories happens before the 4-step methodology is applied. I was under the impression that it was the opposite and each individual material category undergoes the 4-step methodology, which produces its fee. Then certain material category fees are aggregated. Can you clarify?	MCD impact measurement studies were done on a greater number of material categories than the number of material categories on which stewards report and pay fees. This provides an additional level of granularity and detail on how a broad range of material characteristics impact the cost of the system. However, the MCD study categories are mapped to the existing fee setting categories which necessarily includes some aggregation and this is done before input to the fee setting methodology. This aggregation is completed during the calculation of the final MCI used in fee setting.
21.	How flexible is the MCD to new material streams being added as a new material stream would change the overall metrics established by the previous mix of materials	One of the four primary components of the MCD is maintenance procedures that monitor the evolving tonne and evolving recycling processes and technologies and their associated costs. This will ensure that the MCD model can respond over time and stay in step with the marketplace and the evolving tonne and the introduction of new materials and packaging formats. As new materials are introduced, they will be included in measurement studies so that we can gather the necessary metrics that will help

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		inform their value on the Material Cost Index (MCI).
22.	Will any consideration be given adding more material categories? For example, newer plastics not in the exiting HDPE or PET categories.	Please see answer above. The evolving tonne refers to the ever-changing mix of materials in the recycling system as new materials and new formats are introduced into the marketplace. The MCD methodology has been built so that it has the flexibility and nimbleness to reflect these changing conditions.
23.	What happens if the PROs in Ontario do not approve the Four-Step fee methodology?	Stewardship Ontario will determine if it will propose the move to the Four-Step Fee Methodology and the Material Cost Differentiation methodology for use while it remains the designated IFO until wind up is complete. Once the transition is complete and the Ontario PROs assume operational responsibility, we cannot comment on how these organizations will go about setting their prices/fees.
24.	The MCD seems to categorize the recyclability of materials by cost of handling/processing/etc. Is there a similar study or ranking/scoring system that looks at the recyclability of materials regardless of cost? For example, PVC shows a lower cost than some other plastics but many MRF's do not want PVC mixed in their plastic. How will that be addressed?	The MCD Methodology was developed specifically to assess the relative cost impact of materials on the recycling system in order to appropriately allocate gross system costs to all materials in Step One of the Four-Step Fee Methodology. The MCD Methodology was not designed to assess each material's recyclability or end market value. When it comes to materials such as PVC, the MCD methodology is based on the principle that all materials count, all characteristics count and all the activities needed to prepare them to be repurposed are considered. Therefore, since PVC is in the system it must be included in the MCD system and its cost impacts determined based only on its material characteristics not on its recyclability. The MCI is only one input into the Four-Step Fee Methodology. The system costs associated with materials that are not recyclable or might be considered a contaminant are addressed in other aspects of the fee methodology including steps two and four.
25.	What about PVC in the general trends?	If there are innovations in technology that affect the management of PVC or changes to the supply of PVC, these will be considered as they evolve and incorporated into the MCD Methodology accordingly.
26.	How did you distribute the cost of cross contamination, for instance, a can ending up in the ONP and having to be removed at the MRF?	The MCD model, which is comprised of 18 distinct modules, ensures that all cost impacts related to the collection and sorting of each material category are considered. This includes quality control activities such as the impacts of materials that tend to be misdirected at various stages of the sorting process such as lightweight PET bottles that can be misdirected to the mixed paper stream and need to be recovered.
27.	For an excluded material (not collected) does that mean that the calculation for their share of gross cost allocation is based only on the 60% calculated from the contribution of	That is correct but it also means that this material will not receive any share of the commodity revenue under Step 2 of the Four-Step Fee Methodology. Further, this material may assume expense under Step 4 to fund research and development, end market development or other to improve its performance in

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	materials into the market - reported by stewards.	the system.
28.	Using your slide 19, if material two is a material that is not collected in a municipal collection program, its relative share would still be 66.7%. Would it be the expectation of a steward that material 2 should be collected in a blue box, otherwise if collected as trash, the taxpayer is paying twice.	In line with principle that all materials count and should contribute to program costs, material two in your example, will receive a 66.7% share of 60% of the cost of the program based on the supplied quantity as reported by stewards. This feature of the Four Step Fee Methodology ensures that all materials are contributing to the system costs whether or not they are collected for recycling. The steward of a material not collected in the recycling stream may also be contributing to the costs associated with improving its recyclability and/or the development recycling end markets under Step 4. Typically, a material is not collected in the recycling system if it cannot currently be recycled or recovered, due to lack of technology and/or lack of end-markets.
29.	With little to no commodity revenue in many categories, doesn't being a material that is not collected benefit you by avoiding the costs associated with collection, thus advantaging less environmentally sound materials?	The first principle of the Four-Step Fee Methodology is that all designated materials must bear a fair share of the costs of the recycling system irrespective of whether they are collected for recycling or waste disposal. This principle ensures that non-recyclables are not inadvertently rewarded through the fee methodology. Since all materials are assuming their relative share of 60% of the gross cost of the system whether or not they are collected, reduces the share of gross costs attributed to those materials that are collected and recycled, nor do uncollected materials earn commodity revenue, which is allocated in Step 2 of the Fee Methodology. In addition, Step 4 of the methodology attributes cost only to those materials that require investment to improve their cost and performance effectiveness in the recycling system or need development of recycling end markets. In these ways the Four-Step Fee Methodology ensures that materials not yet collected for recycling do not avoid their fair share of the system costs.
30.	What are the expected implications of this new costing model on the allocation between stewards who pay cash and those who pay in-kind? Is the new replacement costing methodology to the ABC methodology expected to have any implication on municipal funding?	The MCD project examined how the characteristics of different materials (density, weight, size, compaction, etc.) impact the cost of managing the blue box recycling system using scientifically controlled procedures. That process revealed that some materials, particularly but not exclusively newsprint, have a larger relative impact on the cost of the blue box recycling system than was previously understood. Adoption of MCD would result in a different distribution of costs among the materials than the current ABC process. Since this redistribution would result in an increase in newsprint fees, the effect would be to increase the proportion of the Steward Obligation that municipalities receive on an "in kind" basis. It should be noted that Stewardship Ontario's ongoing research suggests that the relative contribution of newsprint and therefore the in-kind amount is likely to decrease over time. Stewardship Ontario appreciates that municipalities will have concerns about the

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	Are any cost implications expected for municipalities/First Nations communities funding with replacement cost model that replaces ABC model?	impact MCD would have on the in-kind amount. As noted during the webinar, Stewardship Ontario intends to engage further with municipal representatives on the Transition Plan, including this issue. Additional details on the MCD project and its impacts will be provided at that time, to ensure that municipalities have the information they require to respond meaningfully to this consultation.
31.	Regarding the MCD Methodology, what is the difference between Area Weight vs. Weighted Area Weight? And Pick Rate vs. Weighted Pick Rate?	The metric Area Weight is used to measure the impact on or utilization by a material of mechanical sorting equipment. For all mechanical sorting targeting specific materials, e.g. optical sorting of each plastic resin, electromagnetic sorting (eddy current) of aluminum, or sorting out OCC with an OCC screen, Area Weight is used to differentiate the utilization by materials targeted by that equipment. In the special case of quality control (QC) sorting The Area Weight metric is weighted by the proportion of each material undergoing the QC sorting. For example, several types of plastic packaging must be separated from the mixed paper stream in order for the mixed paper stream to meet the market specifications for its repurposing and to recover the plastic packaging for its repurposing. The screens are not able to separate the mixed paper and all the plastic packaging to the degree required because of the mix of characteristics of both the fibre materials and the plastic materials that flow together. Therefore, additional mechanical (optical) sorting is required to separate these materials. So in the case of this QC sorting, the Area Weight measurement for each material undergoing the optical QC sorting is weighted according to (multiplied by) the proportion of that material present and that must be separated. The difference between the metrics of [Manual] Pick Rate and Weighted [Manual] Pick Rate is precisely analogous. Pick Rate is used to measure the utilization of manual sorting labour and Weighted Pick Rate is used to measure the utilization of manual QC sorting labour. For example, manual QC sorting is required to separate materials that cannot be effectively separated by optical QC sorting, e.g. black plastics and fibre materials in the mixed paper stream. In this case the Pick Rate metrics of each material are weighted (multiplied) by the proportion of the material that utilizes the manual QC sort, in this case the black plastics and the fibre materials in the mixed paper stream.
32.	Regarding the MCD Methodology, can you explain the Percent Contribution Metric?	Some impacts on the cost of the recycling system are difficult to measure with a simple measurement apparatus. This is because of the time over which the impact occurs and because of the challenge of establishing standard conditions under which to make the measurement. The impact of abrasiveness is an example. Therefore the Delphi method was adopted, in which a series of questions framed by the

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		same context in which all other measurements are made, i.e. the MCD System, are posed to both a panel of industry experts knowledgeable about the issue and to a broad sample of recycling system managers and operators. The Delphi method is generally applied as follows: Questions are first posed and discussed in person to a panel of experts. The answers from the panel of experts are compiled and summarized. A second set of questions based on the answers of the expert panel are posed in a broad survey of recycling system managers and operators. The results of the survey are then compiled and summarized and then presented to and discussed with the industry experts with a view to determining whether their initial answers should be changed. The final results are then used as measurements in the MCD calculations. The metric Percent Contribution measures the contribution of a material to the total cost impacts of particular characteristic, say abrasiveness. For example, Glass contributes to X% of the cost impacts of abrasiveness, Steel, contributes Y% and so on. The Delphi method is employed to determine both the total impacts of material abrasiveness on the capital (life, replacement parts) and operating (maintenance) cost of all system activities, equipment and infrastructure and the Percent Contribution to those costs of each material having the characteristic of abrasiveness. Both are then subsequently used as inputs into the MCD calculations.
33.	Regarding the MCD Methodology, how are materials being treated that may be accepted in some municipal systems vs. not accepted in other systems (e.g. coffee cups)?	In accordance with the MCD Guiding principles, specifically: *Guiding Principle #2:* All designated materials count. All designated materials of the packaging and printed paper programs should be considered when measuring cost impacts even when those materials are supplied and/or managed in small quantities because all materials are constituents of the recycling system. *Guiding Principle #4:* All activities count. All activities necessary to prepare the material to be repurposed should be considered because the intention is that all materials supplied into the market should be repurposed. The MCD Methodology will produce a value for each material on the Material Cost Index (MCI) even

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		when the material is not targeted for collection in all municipal systems and even when it is not collected in any municipal system. This MCI value is then used in Step 1 of the Four-Step Fee Methodology to calculate each material's relative share of the Gross Cost (Collection and Processing) of managing the overall system. The Guiding Principles of the Fee Methodology require that all materials contribute to the funding of the system based both on the quantity of material supplied and the quantity of material managed. The conceptual MCD System includes a broader range of materials than typically collected in Canadian municipal recycling programs to help meet Guiding Principle #2 above. The value of each material on the MCI is determined based on impact measurements (cart density, compacted density, area weight, pick rate, etc). However, measurements are typically made with materials obtained from municipal systems. But for some materials, impact measurements cannot be made because they either are not generally collected in Canadian municipal recycling programs or because they occur in quantities insufficient for precise measurement. For the purpose of fee setting, these materials are either assigned a proxy MCI value or they are assigned proxy measurement results used to determine their value within the MCI. The proxies are based on the measurements and MCI values of materials with similar characteristics. MCD Material categories assigned proxy MCI values include Paper Laminates, Plastic Laminates and Other Film, Natural Textile packaging and some plastic packaging which is not yet accepted in commodity specs, such as soft plastic tubes. Materials which are assigned one or more proxy measurements include PVC packaging and rigid PS containers. Coffee cups are part of the MCD material category of polycoated paper and at this time this is included as part of the Paper Laminates category for the purpose of fee setting. Component #4 of the MCD Methodology does include maintenance processes where both materials and recycling process/technology changes are monitored so that as materials begin to be collected by municipal recycling programs, they would be incorporated into the MCD System and impact measurements could become feasible.
34.	Regarding the MCD Methodology, what are the assumptions with the MCD Method and do these assumptions have longevity?	The MCD Methodology is grounded in the MCD Context, in addition to identifying material characteristics and categories, the context establishes a conceptual recycling system's entry and exit point and a corresponding conceptual recycling system design that includes all the activities necessary to move a material from the point of collection through to a state where it is ready to be repurposed

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		without any subsequent operation. Key to this context are that all materials will be set out together, clean and dry in a 360 litre cart and collected as a single stream for the purpose of providing a consistent impact measurement condition only. Additionally, the MCD System includes all the necessary activities to move a material from the point of collection through to a state where it is ready to be repurposed without any subsequent operation. The methodology has defined the repurpose ready commodities based on a set of criteria rooted in the requirement to be ready to be repurposed without subsequent sorting and the predominate technologies and end market practices in the real world. Thus plastic packaging is generally sorted to its specific resin. The conceptual MCD System is assumed to be well maintained and achieves a 97% effectiveness, noting that only designated materials are included. The full cost of all activities and resources to achieve this have been included, rather than the varied financial and business conditions and objectives among municipal recycling programs. Lastly, the impact measurement studies (cart density, compacted density, area weight, manual pick rate, etc.) are conducted based on protocols that impose the same conditions on the measurements for all individual materials. This is so that only the characteristics of the individual materials are being addressed rather than those of the varied commodities which each different service provider or program chooses to produce and the conditions under which they choose to operate, as in the allocation determined by the ABC methodology. The conceptual MCD System has 18 modules, each of which is fully 'costed'. The labour rates, equipment costs, maintenance and operating expenses informing this model are sourced from referenceable sources such as Industry Canada for standard labour rates, equipment manufacturers for current cost of equipment, etc. All of these building blocks contribute to our ability to compare the relative impacts of the materials on a level-playing field basis.
35.	What is the rationale on why in-kind amount for newspapers are doubled using four-step and MCI?	Stewardship Ontario is seeking input on making two changes: First is the replacement of the three-factor formula fee methodology with the Four-Step Fee Methodology.

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		Second is the replacement of the ABC methodology with the MCD methodology. The combination of these replacements and the data and calculations that underpin them result in some materials having higher fees and some materials having lower fees. The replacements result in newsprint having higher fees. Both methodologies (Four-Step and MCD) are based on principles defined by stewards. There is no rationale pertaining to the outcome for any specific material, packaging or product, including that of newspaper. Newspapers are part of the newsprint MCD material category. Newsprint has a relatively low value and rank (sixth lowest) on the MCI. However, the relative value of all materials on the MCI is different than the relative value and ranking within the range of ABC cost/tonne and therefore the relative inputs to the Four Step Fee Methodology are different, resulting in different fees and a different in-kind contribution. The MCD methodology includes new measurement metrics and protocols and additional activities and full costing to ensure that the impacts of individual material characteristics are the focus and all materials are treated consistently.
36.	How is relative cost applied?	As illustrated in the example provided to Q3, the 60% allocation of Gross Cost under Step 1 of the Four-Step Fee Methodology is based on quantities supplied by steward multiplied by the material's MCI value and the 40% allocation of gross cost is based on the quantities of material managed in the province.
37.	Why does PVC have such a low value on the MCI and, given this, might it incent stewards to move to this packaging?	The MCD Methodology is based on the principle that all materials count, all characteristics count, and all the activities needed to prepare them to be repurposed are considered. Therefore, since PVC is a legally designated material under the EPR regulations, it must receive an MCI value and its cost and its impacts are determined based only on its material characteristics, not on its recyclability. It is important to emphasize that the MCI does not provide information about the recyclability of a packaging material or format. Rather the MCI provides information about the relative cost impacts of materials on the recycling system, specifically how much Material A impact costs compared to Material B. Further, while the MCI is an important input to the Four-Step Fee Methodology, it is only one input and pertains to Step One of the methodology i.e., the allocation of gross cost. The Four-Step Methodology can discourage use of materials that are not recyclable or might be considered as a contaminant,

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		specifically in its Step 2 (allocation of commodity revenue) and Step 4 (allocation of cost to materials that may require investment or to increase awareness of the inadvisability of a material, such as PVC). PVC is considered a contaminant if it is mixed with 'other rigid plastics' commodity bales. Other rigid plastics are sold as an engineered fuel ingredient. PVC creates issues of potential dioxin formation during combustion, if mixed with these other plastics. Accordingly, a PVC optical sorter is used in the MCD system to ensure PVC is separated from these other plastics and this, in part, accounts for its relative cost impacts on the system and its position on the MCI. In addition, PVC has a relatively high cart bulk density and average compacted density and a moderate area weight. These characteristics and the fact that no manual primary sortation or manual QC sorting is attributed to it, also account for its middle position on the MCI relative to the other rigid plastic packaging categories. In total, PVC is managed in 8 of the 18 MCD Modules in the MCD System. The cart and collection modules contribute to over 50% of PVC's MCI value, with the 'Mechanical Sort – Optical Sort' and 'QC Optical Sort – Mixed Paper' modules contributing to roughly another 21%. An additional 20% of PVC's MCI value is attributed System Infrastructure module, with 6% from Baling and Storage modules and the remaining % attributed to the Impeding and Damaging Characteristics – Residue module.
38.	While we fully understand that the MCD methodology measures the cost impacts of material characteristics in a "conceptual" recycling system and that the MCD system" could not mirror any one particular real-life recycling system", it would seem that a given material's impacts on the cost of recycling system activities would be directly correlated to its volume relative to other materials, and would be significantly different in a deposit vs a non-deposit system. For example, in a system which manages only non-beverage cartons due to the existence of a deposit system on all beverage containers (currently the case in Saskatchewan and soon to be the case in British Columbia), cartons would have	The MCD conceptual system is comprehensive and is indeed based on a standard mix of the full range of materials targeted for collection, including packaging that may be on deposit in some jurisdictions. In this way, the MCD system accounts for all the activities necessary to prepare the materials for repurposing and their associated relative cost impacts. However, the impact measurements, (which ultimately determine each material categories' value and position on the MCI), are taken for each individual MCD material category's set of characteristics, as they are expressed within each module. These measurements use the standardized metrics such as cart density, compacted density, area weight, manual pick rate, etc. The metrics that are used to measure the characteristics are not dependent on the relative quantity and mix of all of the MCD material categories, and in turn are not affected by them. Having said this, separate MCD material categories for beverage containers and non-beverage containers are defined when the measured impacts for these are different as they have different characteristics. For example, the impacts of PET Beverage Bottles and Jars were measured to be different from those of PET Non-beverage Bottles and Jars. The density of non-beverage bottles is greater than that of beverage bottles and even more different than lightweight PET bottles e.g. thin

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	an expected lower relative impact on the system due to the low volumes. Related to the point above, we are unclear whether and to what extent the relative mix of material categories impacts the MCI. In other words, does the MCD methodology consider a standard mix of materials in the collection truck when determining relative impacts? We look forward to discussing these points in further detail at a future meeting between the CSSA MCD team and CCC and its interested members, as proposed by CSSA.	walled 500 ml water bottles. The non-beverage bottles are quite varied and tend to be thicker walled. Notwithstanding these different impacts, the measurements are standardized and are conducted on each separate MCD category and therefore are not affected by the relative quantity and mix of these materials. In the case of cartons, measurements from the study collection operation were made with a mix of both beverage and non-beverage cartons (only wine and spirit were on deposit in the province where the tests were conducted). This is because the range of cartons used for beverages and those used for other non-beverage products, such as soups and mixes tend to be very similar, i.e., the same aseptic cartons were observed to be used in both applications and the gable-top cartons used in both applications were also observed to be very similar. Therefore, the measurements of density and area weight, etc. were expected to be very similar, such that there is no measurable difference between the impacts of beverage and non-beverage aseptic cartons and no measurable difference between the impacts of beverage and non-beverage gable-top cartons. Accordingly, measurements for cartons would not differ between jurisdictions in which cartons are on deposit and those in which they are not on deposit, and the MCI input would be the same. It is the Four Step Fee Methodology that accounts for differences between jurisdictions because this is where the total quantities supplied and managed come into play. The MCD Methodology, in its Maintenance component, requires that we monitor the characteristics of materials in the marketplace (among other things). Should differences emerge in the characteristics of beverage and non-beverage gable-top and cartons, this would demand we add new MCD study categories.
39.	In reference to Appendix E: Matrix of Material Categories and Modules, we are unclear as to why certain materials, including cartons, are assigned to the "Quality Control on the Optically Sorted Mixed Paper" module (i.e. why they are assigned the cost pertaining to this activity), while others are not. We would argue that all materials should assume some costs pertaining to this activity. As an example, HDPE Nat. Bottles & Jugs (both Beverage and Dairy Beverage) have been included as part of the "QC Optical Sort Mixed Paper" Module,	Only materials that tend to flow together over the mixed paper screens are subject to the QC Optical Sort Mixed Paper and/or the QC Manual Sort Mixed Paper modules. They need to be separated for mixed paper to meet specifications for repurposing and to enable the "misdirected" materials to be recovered for repurposing. These materials tend to flow together because they have some combination of characteristics that cause them to behave similarly, such that the screens cannot separate them. They may be two dimensional or may become two dimensional during collection, tipping or pre-sorting because they are compressible. Or, they may be friable and light and therefore travel with the fibre materials. A Material Category Test* was conducted on materials that tend to be misdirected in which the proportions of each material flowing with the mixed paper were measured. Materials that were observed to flow with the mixed paper stream consequently participate in the QC module.

#	Question	Answer
	but HDPE Colour Bottles & Jugs (both Beverage and Dairy Beverage) have been excluded. We look forward to further discussion on this point as well.	The test demonstrated that a portion of cartons were observed to flow with the mixed paper, and therefore they participate in the QC Module and are assigned measurements according to their Area Weight and their proportion flowing with the mixed paper**. However, Coloured HDPE Bottles and Jugs and Steel Containers were not observed to flow with the mixed paper in measurable quantities and therefore do not participate in the QC modules. * The material category test was conducted in a real facility with key attributes (materials, equipment, throughput) similar to the MCD System and fifty tonnes of material. ** It should be noted that the QC modules are the only modules in which quantity is considered in determining the MCDI. Even then, it is not the mix of materials, rather only the portion of each material present, which is considered. Thus, the corresponding metrics for Optical Sorting (Area Weight) and Manual Sorting (Manual Pick Rate) for each material are "weighted" by the corresponding proportion of each material's presence.
40.	Regarding the repurpose-ready commodities produced by the MCD system (Table 1 in the pre-read document), although the rationale for assigning "Emerging Grade" to the polycoat category was explained to CCC's Managing Director at the July 24th call, we feel it is important to re-iterate that an official ISRI-sanctioned grade has been in existence for food and beverage cartons since 2011. While some carton end markets also accept other polycoated materials (such as hot beverage cups) – typically North American mills with de-inking capabilities – it is our understanding that this is very much on a case-by-case basis. CCC would like to better understand whether and how the MCD system's inclusion of other polycoated materials in this grade affects the MCI values assigned to both carton types (gable top and	All materials that are targeted by the MCD System must be sorted to be prepared for repurposing and the MCD System is designed to employ existing or emerging technology to do so. The repurpose- ready commodity specifications define the extent of sorting required for each material within the MCD System. Notwithstanding the existence of an ISRI grade for cartons alone, the fact that existing mills can receive and repurpose the mix of cartons and other polycoat materials without the need for further sorting, even on a case by case basis, meets the definition of "repurpose". Moreover, since the mix of cartons and other polycoat materials can be sorted for repurposing using existing technology, i.e., optical sorting, and since this is increasingly being done to meet the objectives of recovering this broader range of materials, the mix of cartons and polycoat materials is defined as the repurpose-ready commodity for these materials in the MCD system. The MCI values for cartons and other polycoat materials are determined according to the modules in which they participate and are assigned measurements. The measurements for cartons are independent of all other materials. Similarly, the measurements for other polycoated materials are independent of all other materials. Separation of other polycoat containers and cartons to meet the ISRI 52 grade would require an

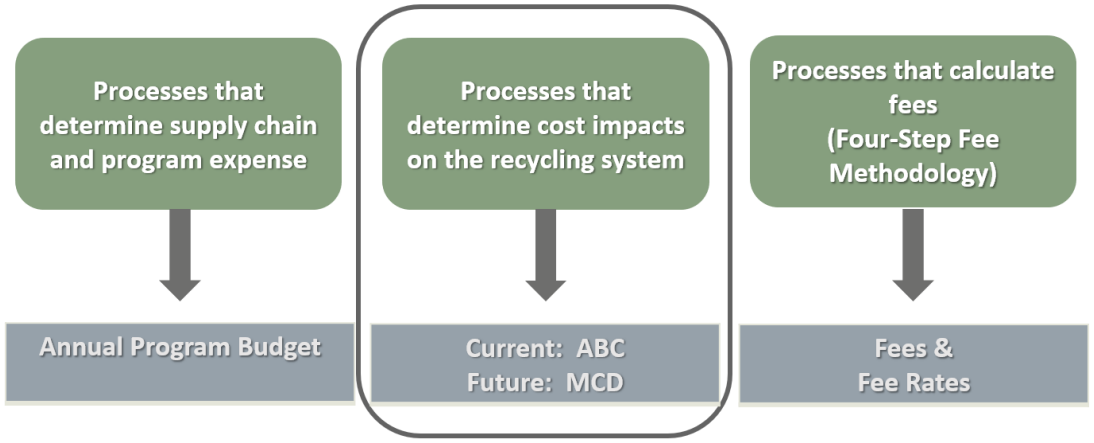
#	Question	Answer
	aseptic containers).	additional, secondary, likely manual sorting step after the initial optical sort and this would mean additional sorting impacts attributed to cartons, with the likely result of increasing its value within the MCI.
41.	**Re Guiding Principles:** Eight principles as outlined are acceptable, but an additional principle is needed: **Principle #9: Contamination by other materials should not be a burden to one material, and contamination removal costs should be fairly allocated between the material being prepared for market and the material causing the contamination**. Page 14 of the pre-read document comments that because of its flat shape, a plastic package can find its way into the fibre stream. Newsprint should not have to pay for clean-up of plastics mixed in the newsprint because CSSA have modelled a 360 litre cart based single stream system (Page 20 and elsewhere), and then mis-directed into the fibre stream because of the flat plastic package shape. The flat plastic package then needs to be separated from fibres to clean up the fibre stream to meet market specs (this example is cited Page 14,21 and an example of a lightweight PET bottle misdirected to the mixed paper stream on page 22). Most or all of the clean-up costs should be assigned to	Both Guiding Principles #3 and #4[3] were designed to address the very concern that you articulate in the proposed Principle #9. These instruct us to account for all activities necessary to ready a material to be repurposed and to account for all characteristics of a material that require those activities so that cost impacts are accurately measured and appropriately attributed. By respecting Principles 3 and 4, Newsprint assumes only the portion of the quality control sorting costs that reflect its characteristics. Newsprint does not assume the cost impact of sorting, for example, the PET Thermoforms or PE Rigid Containers and Lids that find their way into the Mixed Paper stream. Fibre screens are used to separate two-dimensional materials, such as corrugated cardboard and newsprint, from other materials, primarily plastic, metal and some paper packaging. The screens exploit the two-dimensionality and size of a fibre target material such as a large corrugated cardboard or smaller corrugated cardboard, newsprint and boxboard, to separate them from the rest of the stream. The effectiveness of the screens and the relative utilization of them is determined by the area weight of each of the individual fibre materials screened off and in this case the cost impacts are entirely attributed to fibre . The Area Weight metric is explained more fully below. Quality Control (QC) sorting of mixed paper is required because the fibre screens alone cannot separate materials sufficiently. Some plastic, paper and metal packaging tend to flow with the mixed paper over the screens because they share some combination of characteristics, either the packaging is two-dimensional like newsprint, or it becomes two-dimensional during the collection, tipping and pre-sorting process or because it is light and is entrained with the various fibre materials, like newsprint. These materials must be separated to enable the mixed paper to meet the market specifications and for the packaging to be effectively recovered. The QC modules (Module 10 – QC Optical Sort Mixed Paper and Module 11 – QC Manual Sort Mixed

[3] Principle 3: **All materials characteristics count**. When differentiating the cost impacts of one material as compared to another, all of a material's characteristics that can reasonably be measured, should be measured because each material's characteristics can impact costs in different ways.

Principle 4: **All activities count.** All activities necessary to prepare the material to be repurposed should be considered because the intention is that all materials supplied into the market should be repurposed.

#	Question	Answer
	plastics in particular. Capital and operating costs of screens should at least be shared between ONP and plastic, but all be assigned to ONP.	Paper) together represent a small component (only 3%) of the overall system resources and assign cost impacts to each of the 23 of the 36 MCD Material categories, not only newsprint. The impacts are determined using the appropriate module metrics (area weight for optical sorting and manual pick rate for manual sorting) and the corresponding measurements for each participating material. The measurements express how the material characteristics impact system resources. Thus, each of the materials that require the resources of the QC modules generate impacts that are directly related to their characteristics. Finally, a note about how the eight MCD guiding principles were developed. They were created by a Guiding Principles Working Group, composed of a "steward" delegate from each of the four Packaging and Paper Product program Boards of Directors over the course of two workshops held in early 2017. They were subsequently carefully reviewed by the Steward Consultation Committee shared with the entire steward community first in July 2017 and then again during the 2017 Annual Steward Meeting, thus providing numerous opportunities for comment. They have actively guided the work of the project team during the development of the MCD Methodology.
42.	Newsprint is easy and inexpensive to recycle when collected in a 2-stream (fibres/containers) system. The decision to only model a cart based single stream system unfairly burdens ONP with higher costs than it would incur in a 2-stream system which is being encouraged in BC because 2-stream systems produce cleaner materials which are less costly to process, and produce higher quality materials for sale at higher revenues because of better quality to end markets.	Principle #6[4] requires taking account of all designs as well as operation resources and their drivers. It requires that they be rooted in the real world, i.e., that they reflect the resources required by existing or emerging commercial technologies. However, it does not suggest that the methodology attempt to pick a specific, preferred or most cost-effective design, such as the dual-stream system you suggest. In fact, the objective of the Conceptual MCD System is to eliminate the influence of different system/program designs as they exist across jurisdictions. As well, it was important to put all materials on a level-playing field before measuring the impacts their characteristics have on the cost of the recycling system activities – a top priority for stewards. That is not to say that specific program designs are not taken into account. They are reflected in each program's annual budget, expressed in the supply chain costs. Recall that calculating the fees for each PPP program involves three distinct sets of activities: 1) setting the program budget; 2) determining material cost impacts on the recycling system; and 3) calculating fees and fee rates, as illustrated in Figure 1 below.

[4] Principle 6: **System design and operations count**. The Material Cost Differentiation Methodology should be rooted in measurable recycling system activities, resource usage and costs drivers.

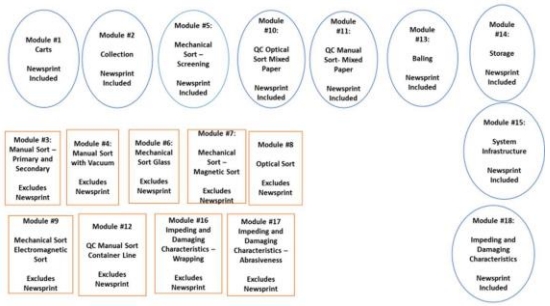
#	Question	Answer
		Figure 1 – Three distinct sets of processes for fee setting  The MCD Methodology applies to and supports the second set of activities, illustrated here, (i.e., measures material cost impacts in the recycling system), and, if approved, will replace current Activity Based Costing. In turn, the MCD Methodology's results will provide the key input to the third process set seen here -- calculating fees and fee rates. The MCD methodology does not and should not suggest what design is most appropriate for a specific program as these design decisions are far more complex than the number of streams for collection and the type of box/cart itself. For example, they can extend to the level of sorting that is appropriate to do locally, based on proximity to end markets, the cost-benefit of utilizing technology locally, etc. These are all important inputs to a particular program's operation, and are reflected in setting its annual budget as noted above. The choice of a conceptual system in which all materials are collected together in a cart ensures that all activities to recover and prepare all materials for repurposing are captured and that all resources are attributed in a standardized way, addressing Principle #4. No required activities are externalized, such as sorting by residents into separate streams. All sorting activities are included so that all commodities meet all market specifications for repurposing them. As with the selection of any different conceptual system design, the selection of dual stream collection

#	Question	Answer
		for the conceptual system would require a different MCD model, consisting of different modules and cost factors. Instead of QC sorting of mixed paper, it would rely on separation by residents and additional loading activity at the curb, likely resulting in higher collection costs. Processing costs might be lower, but there would be some additional dedicated processing infrastructure, such as tipping floor space and feed conveyors, in which newsprint would assume some cost impacts. How much higher and lower these costs would be and the impact on the MCI is unknown and would depend on specific design choices (such as whether a Mixed Paper (ISRI 54) or Sorted Residential Papers & News (SRPN) (ISRI 56). That said, the approach to measuring the impacts would be the same. The impacts of each individual material on the resources of all applicable activities would be measured using appropriate metrics, and standardized protocols would reflect the characteristics of the individual materials on those activities. In some cases, the measurements themselves would be the same whether the collection was single-stream or dual-stream, such as for cart (or other set out container) density and compacted density, whether the collection was single-stream or dual-stream. The impacts would be determined in the same way, but given different activities and corresponding cost factors, the precise effect on the MCI is unknown without full modelling of the modified MCD System. However, since the MCD conceptual system was designed specifically to meet all the guiding principles and the requirements of the Four Step Fee Methodology, this is not considered appropriate. for the additional collection costs, the dedicated infrastructure and equipment and for any externalized sorting costs.
43.	The MCD Model has 10 metrics, 10 protocols and 36 material categories, along with a model with 18 modules. Our interest is the newsprint category. The MCD calculation consists of 4 steps: • Calculate the RIF (relative impact factors); • Calculate CF (cost factors) for each module; • Multiply RIF by CF for relevant modules (to create MCDI – module cost differentiation index) and	Thank you. Your comments about Appendix E are noted.

#	Question	Answer
	• Sum MCDI to determine material position on MCI. For newsprint, from Appendix E matrix the 9 relevant modules are: • #1: Cart • #2: Collection • #5: Screens • #10: QC Optical sort mixed paper • #11: QC manual sort mixed paper • #13: Baling • #14: Storage • #15: System infrastructure • #18: Damaging residue It is worth noting that the matrix in Appendix E does not number the modules, and the modules after "screens" (along the top) are in a different order to the numbering system in Appendices D and E, which was somewhat confusing.	
44.	Section 9.2. Producing the Relative Impact Factor (RIF): The RIF uses ten metrics, some of which are straightforward, but we would like more information on how two metrics in particular are fair to newsprint: • #4 - Area weight and • #6 – Weighted area weight. We have a concern that the measurements may not be accurate or fair to newsprint and would like to see the results on	**Area Weight** Fibre screens are used to separate two-dimensional materials such as corrugated cardboard and newsprint, from other materials primarily plastic, metal and some paper packaging. The screens exploit the two-dimensionality and size of a target material such as large corrugated cardboard or smaller corrugated cardboard, newsprint and boxboard, to separate them from the rest of the stream. And while screening is primarily a sizing operation, with some screens targeting large materials, e.g., large corrugated cardboard and some targeting smaller materials, e.g., small corrugated cardboard, boxboard and newsprint, size is not the characteristic that best reflects the relative impact of the screening module. Rather, the measurement that most effectively expresses the relevant characteristics and their relative impacts on screening materials is the weight per time of material that travels over a screen. More specifically, it is the weight of *a single layer* of material that travels over a

#	Question	Answer
	which the calculations are based.	screen (area weight) that best determines the material's utilization of the screen. Like other mechanical sorting equipment (e.g. optical sorting of each plastic resin, electromagnetic sorting (eddy current) of aluminum), screens need to spread material out into a single screening layer to be effective. **Weighted Area Weight** As noted above, several types of plastic, paper and metal packaging must be separated from the mixed paper stream in order for the mixed paper stream to meet market specifications for its repurposing and to recover the plastic and other packaging for their respective repurposing. The screens are not able to separate the mixed paper from all the plastic and other packaging to the degree required because of the mix of characteristics of both the fibre materials and the plastic, as well as other materials that flow together – characteristics such as flatness, size, lightness, etc. Therefore, additional mechanical (optical) and manual sorting is required to separate these materials. So, in the case of optical QC sorting, the Area Weight measurement for each material undergoing the optical QC sorting is weighted according to (i.e. multiplied by) the proportion of each material present that must be separated from the others. To illustrate, assume that X% of the PET Thermoforms, Y% of the EPS and Z% of newsprint flows with the mixed paper. Thus, the resulting Weighted Area Weight measurement will be Area Weight of PET Thermoform x X%; Area Weight of EPS x Y%; and Area Weight of Newsprint x Z%. Please note that the QC modules are the only modules in which quantity is considered in determining each Module Cost Differentiation Index. Even then, it is not the mix of materials, rather only the portion of each material present, that is considered. Thus, the corresponding metrics for Optical Sorting (Area Weight) and Manual Sorting (Manual Pick Rate) for each material are "weighted" by the corresponding proportion of each present material. Incidentally, the proportion of each material that required QC sorting was measured using a material category test and conducted in a real facility with key attributes (materials, equipment, throughput) that resembled the MCD System, with fifty tonnes of material.
45.	Section 9.2.3 (P 27) Determining the Relative Impact Factors (RIF): We would like to see the inputs to developing the RIF for each module, to more fully understand how the relative	CSSA would be pleased to prepare a targeted presentation for Newsprint stewards, both Newspaper publishers and Retailers, interested in understanding more about the contributors to the category's MCI. We have been open to requests from all stakeholders throughout the consultation process and have hosted similar meetings with Restaurants Canada, Carton Council and Canadian Beverage

#	Question	Answer
	contribution of newsprint is calculated for the 9 modules which are considered relevant (listed above). We are also interested in the other 9 non-newsprint modules to see how much cost they proportionally contribute to the system total cost.	Association. We will be in contact to arrange a meeting with Newsprint stewards now that you have indicated your interest in learning more about the MCI. Our presentation will focus on the metrics used in the modules that impact the newsprint position on the MCI and provide comparison to other materials using the same modules.
46.	**P 27 – Module Cost Factor (CF):** We understand that MCF are developed or being developed for a system which processes 31.75 tonnes per hour each of the 18 modules. Is it possible to get the material mix on which the MCF is based – for newsprint in particular we would like to know the assumptions about the material mix which is being collected and processed. No detail was available in the report and it would be helpful to see what the relative costs of each of the 18 modules (as a % of the whole) are.	CSSA would be pleased to prepare a targeted presentation for Newsprint stewards, both Newspaper publishers and Retailers, interested in understanding more about the contributors to the category's MCI. We have been open to requests from all stakeholders throughout the consultation process and have hosted similar meetings with Restaurants Canada, Carton Council and Canadian Beverage Association. We will be in contact to arrange a meeting with Newsprint stewards now that you have indicated your interest in learning more about the MCI. Our presentation will focus on the metrics used in the modules that impact the newsprint position on the MCI and provide comparison to other materials using the same modules.
47.	**P 29 – Module Cost Differentiation Index** Is it possible to provide us with the RIF for each material and the CF for each module in your model. We have used the information in your pre-read to try to better understand the factors that go into the MCI for newsprint. The figure below shows your 18 modules, with the 9 impacting newsprint and the remaining 9 where newsprint is not involved. Understanding the relative cost of each of the 18 modules in your model as well the relative contribution of newsprint to the overall module cost (in the 9 modules where	CSSA would be pleased to prepare a targeted presentation for Newsprint stewards, both Newspaper publishers and Retailers, interested in understanding more about the contributors to the category's MCI. We have been open to requests from all stakeholders throughout the consultation process and have hosted similar meetings with Restaurants Canada, Carton Council and Canadian Beverage Association. We will be in contact to arrange a meeting with Newsprint stewards now that you have indicated your interest in learning more about the MCI. Our presentation will focus on the metrics used in the modules that impact the newsprint position on the MCI and provide comparison to other materials using the same modules.

#	Question	Answer
	newsprint is included) would help us to better understand the material cost differentiation details. The figure shows the modules which include newsprint in round blue shapes, and the 9 modules where newsprint is not included in rectangular orange shapes. We have constructed this figure from the information in Appendices D, E and F of the pre-read. 	
48.	**P31 Material Cost Index (MCI):** The figure on Page 31 shows the relative MCIs of all materials. Is this the actual MCI or just an illustrative example? We understand why magazines, catalogues and directories could have a lower MCI than newsprint (assuming it is because of density), but we need more detail on how specifically the calculations were carried out that resulted in newsprint having a higher MCI than steel containers and glass packaging in particular. The video on the CSSA website uses glass packaging as an example of a material which is abrasive to equipment, increasing wear and tear, and	CSSA would be pleased to prepare a targeted presentation for Newsprint stewards, both Newspaper publishers and Retailers, interested in understanding more about the contributors to the category's MCI. We have been open to requests from all stakeholders throughout the consultation process and have hosted similar meetings with Restaurants Canada, Carton Council and Canadian Beverage Association. We will be in contact to arrange a meeting with Newsprint stewards now that you have indicated your interest in learning more about the MCI. Our presentation will focus on the metrics used in the modules that impact the newsprint position on the MCI and provide comparison to other materials using the same modules.

#	Question	Answer
	therefore maintenance costs on collection vehicles and sorting equipment (also stated on Page 14 of the pre-read report). Newsprint which is easy to handle, with good markets should surely be lower than glass packaging on the MCI scale, therefore we took a more careful look at the factors that go into the MCI calculation and where we need more detail to assess whether the assumptions that went into the MCI were reasonable or not. These information requests are listed earlier.	
49.	P 17 – sorting protocol criteria. Point # 2: "when not the simplest sorting process, the sorting protocol represents the predominant industry practice. Can you confirm that screens are the predominant industry practice for cleaning up fibre at this time?	The use of non-wrapping screens to separate two-dimensional fibre materials from three-dimensional containers and other packaging formats has been incorporated into the MCD System design, because this is the predominant technology used in MRFs across North America today. When applying the "sorting protocol criteria", as described on page 17 of the MCD pre-read, the two repurpose-ready commodities that emerge for fibres are OCC (ISRI 11) and Mixed Paper (ISRI 54). **OCC (ISRI 11)** While this does not represent the simplest sort of fibre materials (the simplest sort would be to sort all fibre to Mixed paper (54), it is overwhelmingly the predominant industry practice to sort large OCC from all other fibre materials. In addition, OCC (ISRI 11) is an established repurpose-ready commodity specification. **Mixed paper (ISRI 54)** Represents the simplest sort of remaining 2D fibre materials after large OCC is removed by the OCC screen. It is the emerging industry practice to produce a Mixed Paper (54) grade at MRFs across North America, noting that newsprint is a declining material or product in residential recycling programs. While some recycling programs still undertake some sorting of newsprint, it generally does not meet the Sorted Residential Paper and News (ISRI 56) specification. Mixed Paper (54) is an established repurpose-ready commodity specification.
50.	P17 – point #3: The sorting protocol represents and emerging industry practice –	Please refer to response above.

#	Question	Answer
	can you confirm there are no emerging industry practices that would impact on newsprint recycling and increase the cost of recycling.	
51.	P 18 – Commodities produced by the MCD System – we have noted that there is no separate newsprint category assumed and that paper is marketed as either mixed paper ISRI Grade 54 or OCC – ISRI Grade 11. Can you confirm what percentage of newsprint was directed to each of these bale categories?. Also confirm if possible how much boxboard was assumed to go into each of these bales.	In the MCD System, large format OCC is directed to the OCC bale (ISRI grade 11) using the OCC Screen. Small format OCC flows together with other fibre materials to the Mixed Paper (ISRI Grade 54) using the second level of fibre screens. The newsprint entirely flows with the Mixed paper stream. All boxboard flows with the mixed paper stream. OCC bale (ISRI grade 11) and Mixed Paper (ISRI Grade 54) are the repurpose-ready commodities defined for fibre in the MCD System and for each individual material category. A Material Category test was conducted to establish how materials flowed in the preparation of each of these bales and accounted for the need for any additional sorting. The test was conducted in a real facility with applicable equipment similar to the MCD System using 50 tonnes of material. Regarding your question about the proportion of newsprint and boxboard that went into the bales, the composition of the commodity bales is not relevant to the MCI because it only measures the cost impacts required to get them into bales (i.e., a repurpose-ready state.

Appendix B: Stakeholder Feedback to the MCD Consultation with CSSA Responses

Organization	Do you agree that the MCD Methodology is sufficiently principle-based, fair, defensible and comprehensive?	Is it clear how the MCD methodology will be applied and how it will contribute to fee setting?	Did you find the pre-read and other project materials helpful and will you be able to use them to brief your colleagues? If not, what additional materials would be helpful?	What else do you want to tell us about the proposed Material Cost Differentiation Methodology?	CSSA Response
Home Hardware	Yes	Yes.	Yes. The in-depth [pre-read] gives a good background, and the abridged version was nice for a quick summary. I also like the video on CSSA's MCD webpage.	Two years into this, I think you have nailed everything you wanted to include, and the explanations are clear and consistent. I have nothing to add, or to question. I understand the reasoning, and think the process makes complete sense.	Thank you for your comments in support of the MCD Methodology.
Loblaw Company Limited			MCD methodology was well presented. After being involved in initial discussion and later with expanded group we only have positive comments on the methodology.	Establishing universal weightage/percentages is better option in applying across all provinces. New provinces joining CSSA will know beforehand how their total expense will be allocated to different material	Thank you for your comments in support of the MCD Methodology.
Procter & Gamble	Yes, we agree	Yes, it is clear	All materials are clear and helpful	It needs to be implemented as soon as possible	Thank you for your comments in support of the MCD Methodology.
Saputo	Agree with new methodology as all characteristics and cost impact for each material is being considered as well as being much more standardized.	Yes, all four components to material cost differentiation is understood.	Yes, pre-read is helpful		Thank you for your comments in support of the MCD Methodology.
Retail Council of Canada	RCC supports replacing the Activity Based Costing (ABC) Methodology with the proposed Material Cost Differentiation (MCD) Methodology. Given the age of	RCC suggests that there be a limit to annual fee increases introduced as a result of the methodology change. Limits		Despite RCC's support for the methodology, it is important to consider how implementation will impact other program aspects for	Thank you for your comments in support of the MCD Methodology.

Organization	Do you agree that the MCD Methodology is sufficiently principle-based, fair, defensible and comprehensive?	Is it clear how the MCD methodology will be applied and how it will contribute to fee setting?	Did you find the pre-read and other project materials helpful and will you be able to use them to brief your colleagues? If not, what additional materials would be helpful?	What else do you want to tell us about the proposed Material Cost Differentiation Methodology?	CSSA Response
	the ABC Methodology, RCC believes the MCD Methodology is more comprehensive, has strong guiding principles and better reflects the current state of technology and materials in the marketplace. The methodology will help provide a level-playing field for stewards as well as being repeatable, defensible, and adaptive to innovation in the marketplace.	are a common practice in other jurisdictions, including Quebec where Éco Entreprises Québec (ÉEQ) limits material fee increases to a maximum of 50% each year. Annual fee increase limits will also help provide stability as stewards take on additional responsibilities and costs as programs transition to extended producer responsibility, including the Ontario Blue Box. A way to better manage the potential cost increase for certain categories would be to introduce the MCD over two years, so the four provincial programs do not implement it all at once. If this approach is taken, reporting categories should be harmonized between provinces throughout transition, regardless of whether the MCD Methodology has been implemented or not.		stewards, such as reporting. Although changes in reporting categories can help incentivize desirable packaging behaviour, RCC calls on CSSA to avoid, as much as possible, any additional administrative burden for stewards to adjust IT procedures, databases, reporting templates and more to ensure compliance. Stewards need sufficient lead time to prepare for the implementation of the new methodology, particularly in programs undergoing transition such as the Ontario Blue Box. In addition, we recommend that any changes to reporting coincide with the end of a reporting period to simplify the process for stewards in terms of compiling data and producing reports	Concerns about potential changes to reporting categories are noted. It is CSSA's intention to explore whether steward reporting categories should be aligned with MCD material categories to balance precision in the categories where it contributes to the fairness of the MCD Methodology. Our next harmonization project will consist of an examination of the existing reporting categories and we will request steward participation in the project. Timing and potential complexity of implementation will certainly be part of that work and all efforts will be made to minimize administrative burden to stewards, while staying true to the principles of the MCD Methodology and the Four-Step Fee Methodology. The suggestion to phase in the implementation of the MCD Methodology to mitigate the cost implications for some stewards is appreciated, and will be carefully considered.
Van de Water-Raymond 1960	I agree the MCD methodology looks fair, but I don't know really if it's better than	The application from what I understand is pretty similar to		You want to change your methodology to MCD to change	Thank you for your comments. We believe that the MCD will improve the fairness of

Organization	Do you agree that the MCD Methodology is sufficiently principle-based, fair, defensible and comprehensive?	Is it clear how the MCD methodology will be applied and how it will contribute to fee setting?	Did you find the pre-read and other project materials helpful and will you be able to use them to brief your colleagues? If not, what additional materials would be helpful?	What else do you want to tell us about the proposed Material Cost Differentiation Methodology?	CSSA Response
Ltd	the actual method used to calculate the fees. I supposed you also made some similar studies when you classified the actual fees we are paying? We are also paying the fees right now based on the material we are using.	the actual methodology for us. From my understanding, it will only impact the fees associated with a material, but it doesn't change the way we produce our reports, which is already based on the material multiplied by the weight.		the fee rates. From what I understand, this change would only have an impact between now and 2025 (end of Stewardship Ontario), so what is the point of changing make a lot of efforts to change the methodology for something that would only have an impact for 5 years. I hope the cost-benefit to do that makes sense.	fee setting because it: is principle-based; establishes a level playing field by treating all materials in a standardized and consistent way; and differentiates the impacts that material characteristics have on the cost of the recycling system. All of these attributes are improvements over the current Activity Based Costing (ABC) method primarily because the ABC expresses the cost impacts to manage each material solely on a cost-per-tonne (i.e., weight basis). This is not sufficient to accurately assess the extent to which various materials impact the cost of a recycling system and therefore does not consider material impacts in a standardized way. Regarding the MCD Methodology's impact on steward reporting categories, It is CSSA's intention to explore whether steward reporting categories should be aligned with MCD material categories to balance precision in the categories where it contributes to the fairness of the MCD Methodology. CSSA is planning a harmonization project that will examine the existing reporting categories. We will request steward participation in the project. Timing and potential complexity of implementation will certainly be part of that

Organization	Do you agree that the MCD Methodology is sufficiently principle-based, fair, defensible and comprehensive?	Is it clear how the MCD methodology will be applied and how it will contribute to fee setting?	Did you find the pre-read and other project materials helpful and will you be able to use them to brief your colleagues? If not, what additional materials would be helpful?	What else do you want to tell us about the proposed Material Cost Differentiation Methodology?	CSSA Response
					work and all efforts will be made to minimize administrative burden to stewards, while staying true to the principles of the MCD Methodology and the Four-Step Fee Methodology. Regarding implementation of the MDC Methodology, its application will not be limited to Stewardship Ontario's program. The Board of Directors of each of the four PPP programs, supported by CSSA (Recycle BC, MMSW in Saskatchewan, MMSM in Manitoba and Stewardship Ontario) will consider the results of this consultation in their decision whether to approve the MCD Methodology for use in fee setting.
Andrew Pollock Environmental				All non-recyclable packaging (e.g. multi-layer plastic pouches, plastic-lined paper bags, PVC thermoplastic, etc.) should be assessed, in addition to the proposed "proxy impact value", as "non-recyclable packaging surcharge" that reflects the following cost impacts: a) higher residue sorting and residue disposal costs at MRFs as a result of residents mistakenly placing non-recyclable packaging in their Blue Cart or Blue Box due to	Thank you for your suggestions. Regarding the treatment of "non-recyclable" formats such as PVC and plastic-lined paper bags, it is important to remember that the MCD Methodology was developed specifically to assess the relative cost impact of materials on the recycling system in order to appropriately allocate gross system costs to all materials in Step One of the Four-Step Fee Methodology. The MCD Methodology was not designed to

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				confusion with respect to its recyclability, and b) higher municipal garbage collection and disposal costs when non-recyclable packaging is sorted correctly by residents and placed in the garbage stream. 2. The non-recyclable packaging surcharge also sends an important message to brand owners that the use of non-recyclable packaging has system impacts beyond the proposed proxy impact value PVC (No. 3) packaging should be moved to the excluded material list in Appendix B of the Consultation Document because PVC packaging cannot be marketed as a recyclable material and is not permitted in engineered fuel products. 4. Packaging made from No. 7 plastic, listed as an included material in Appendix B, is usually defined as "other plastics not included in Nos.1 to 6, such as acrylic, nylon, polycarbonate, polylactic acid, and multilayer combinations of different plastics". Since these plastic types have	assess each material's recyclability or end market value. When it comes to materials such as PVC, the MCD methodology is based on the principle that all materials count, all characteristics count and all the activities needed to prepare them to be repurposed are considered. Therefore, since PVC is in the system it must be included in the MCD system and its cost impacts determined based only on its material characteristics not on its recyclability. The MCI is only one input into the Four-Step Fee Methodology. The system costs associated with materials that are not recyclable or might be considered a contaminant are addressed in other aspects of the Four-Step Fee Methodology including steps two (allocation of commodity revenue) and four (allocation of P&E and market development costs). If there are innovations in technology that affect the management of PVC or changes to the supply of PVC, they will be considered, and incorporated into the MCD Methodology.

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				distinctly different properties, they should be evaluated individually to determine if any of them are actually recyclable. Non-recyclable No. 7 packaging should be added to the excluded material list and be assigned a non-recyclable packaging surcharge as described in Comment 1 above	
V Tech	Boundaries" description is lacking and/or kind of fuzzy, especially Exit. The "exit" part is fuzzy because it's not really something we will have had experience seeing since it's done at a transfer station. Or, do we review each item with first hand knowledge of what it is and, decide at what point it would be in a state for "repurpose"? I.e, "Corrugated Cardboard", all it needs is to be sorted out and baled. That's the exit point for the MCD methodology.	No, I feel that a set of examples that specifically tracks an item from start to finish would be very helpful.	Would it be possible that CSSA provide a tool in the form of a spreadsheet which would lay out what factors in to setting an MCI for each item? That is, an example spreadsheet that includes all material categories, characteristics, metrics, and modules? Then, new Stewards would easily see what is expected because, as the described methodology is presently presented, it's a bit fuzzy. "Weight" has been replaced with ... then, list all applicable up front? All that apply (i.e., Appendix A, B, C, D and so on)	There's a lot of text that describes each well but, there is so much that one loses track of the forest for the trees. Suggest CSSA add a couple of “examples" leading off and then track it right through the "MCD Guide" where, at the end of each section description, show how it affects or, adds to those examples.	Thank you for your suggestion that more examples be provided. The June 25th webinar presentation provides a number of examples, not contained in the pre-read, that you might find useful and we invite you to review them, beginning on slide #45. They include the observation that HDPE colour bottles have a lower MCI value than HDPE natural bottles; newsprint has a higher value than magazines and why. If the MCD Methodology is approved, then each year in the fall at the Annual Steward Meeting, the Material Cost Index will be published, along with appropriate context and commentary on its use in fee setting, including helpful examples.
My Green Planet				I read the pre-read and it is all but	Thank you for your comments. We do

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				incomprehensible except to operations managers. As this program includes all businesses, the language of this publication should be at a level that all stewards can understand if they are expected to participate. The more complex reporting becomes (i.e. additional materials added to the reporting list etc.) the higher chance of poor and inaccurate reporting by the stewards. Many companies do not have the level of sophistication to be able to do the existing reporting let alone adding additional categories. I noticed that all the companies listed in the pre-read document are very large companies with considerable resources and money to hire consultants, if needed. Also, nothing in this document address the complexities of actually determining what the packaging is (boxboard, plastic film, PET etc.) for each product. For example, if a company has 6000 different SKU's ALL WITH DIFFERENT PACKAGING, just determining what the packaging is, and estimating a weight for each	recognize that the pre-read document has a great deal of detailed content. The pre-read document was provided for transparency purposes to detail the technical procedures and research that went into the MCD project and determining its outcomes. This kind of document is especially important for stewards who rely on consultants to formulate their feedback. To ensure this content is accessible to all stewards, we provided a five-page overview document for stewards that highlights the Material Cost Differentiation (MCD) project and summarizes its key elements. This includes a Features & Benefits summary that is intended to assist you when reviewing the Methodology with your colleagues. You may also find the MCD Methodology webinar held on June 25, 2020 helpful. A recording of the webinar is available here and the presentation is available here. We hope that these additional tools help, and please feel free to reach out to us if you have any questions.

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				SKU is a daunting task. I believe that allowing stewards to estimate their packaging weight based on different revenue streams, would be a much better idea. The small business cut off is too low. Finally, what is being done to make the manufacturer/packager of the products cut back on their packaging? The current system assumes that the resellers of, most likely, imported products have influence on how the manufacturer packages the product. Again, the only companies that have any influence on packaging are the large ones. As a small company, we have no influence and are penalized by having to pay fees for something we have no control over. Additionally, it is in the best interest of recycling organizations to keep the revenue stream going so encouraging the generator of the packaging to change their practices has not been pursued sufficiently. If stewardship programs are too good at their jobs, they will be put out of business.	

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				Recycling regulations are deflecting attention away from the real problem.	
Staples	The new MCD Methodology is much needed to reflect the current recycling technology and changes in material characteristics. The MCI will be very helpful for Stewards engaged in the Circular Economy to compare materials and allow for future modifications.			The MCD Methodology doesn't address some of the bigger issues facing Stewards. Namely, financial planning due to increasing costs. The fee calculator provided as part of the consultation to allow Stewards to gauge the potential difference in material fees is shocking. While some material fees decreased, many materials increased by 50% or more and some even over 100%. As a Retail Steward registered in all four provinces, these fees are becoming a financial burden and risk. We used the calculator to estimate potential fees for 2021 and saw our fees increase by approximately 50% across all four provinces. CSSA on behalf of the provincial programs should consider implementing a maximum annual material fee increase to allow stewards to better plan their financial obligations. Each year when the fees are released during the CSSA annual meeting in	Thank you for your comments in support of the MCD Methodology. Thank you for your concerns regarding increasing costs. We agree that the MCD Methodology is not designed to address the issue of rising costs to recycle materials. However, your concerns are noted and the suggestion raised by Retail Council of Canada (above) to phase in the application of the MCD Methodology will be carefully considered.

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				October, our Finance team must adjust and budget for these costs. The constant change and significant increases make this extremely challenging. For example, the 85% increase of General Paper fees between 2019 and 2020 in BC had a significant impact on our Blue Box fees.	
Federated Co-operatives Limited	FCL supports the MCD Methodology design in that fees are set in consideration of current recycling technologies in addition to the impact of material's characteristics (weight, density, size, etc.) on collection and management costs. We also support the intended outcome: the lower the impact on the environment and the recycling system, the lower the fee. The methodology therefore seems consistent with FCL's principles for effective policy design in that they are: • Equitable – no jurisdiction, sector or entity should be expected to bear an unreasonable burden or be competitively disadvantaged; • Transparent – policy design and costs will be clearly communicated along with clearly defined objectives;			While FCL recognizes the benefits of advancing the MCD methodology, we are cognizant of the operational and administrative burdens that implementation of a change in fee structure will incur. These include, but are not limited to the following: • Assessment of existing and potential alternative packaging and paper products; • Procurement of new packaging and paper products as warranted; • Adjustment of inventory data bases and reports in IT systems; • Development of new processes and administrative practices; and • Employee training	Thank you for your comments in support of the MCD Methodology. We note your concerns about the potential complexity, timing and administrative burden associated with adopting the MCD Methodology. All efforts will be made to minimize the administrative burden to stewards. The Retail Council of Canada's suggestion to phase in the implementation of the MCD Methodology to mitigate the cost implications for some stewards is also appreciated, and will be carefully considered.

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	• Sustainable – policies are based on economic analysis and supported by feasibility and impact assessments that consider the balance of environmental, economic and social goals; and, • Achievable – must involve existing and contemplated technologies and policies that can be applied and sustained in both the immediate and long term.			In consideration of the time and costs that associated with the above, FCL requests a minimum of one of year notice between the dates of publication and implementation of new rates and reporting systems. We further request that the date of implementation coincide with the end of a reporting period. FCL is committed to developing cost-effective solutions that are effective in our environment and our communities. We support the adoption of the MCD Methodology with the understanding that time and administrative costs for implementation will be accounted for. In addition to this feedback, FCL strongly supports the Retail Council of Canada's submission in its entirety.	
Carton Council	We agree that the MCD methodology as presented to stakeholders on June 25 is sufficiently principle-based, defensible	Yes.	Yes, in particular we found the pre-read very helpful, as well as the program fee calculators.	Regarding the repurpose ready commodities produced by the MCD system (Table 1 in the pre-read document), although the rationale	Thank you for your comments in support of the MCD Methodology.

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	and comprehensive. Although we also agree that the methodology is fair, we would like to make the following observations: While we fully understand that the MCD methodology measures the cost impacts of material characteristics in a "conceptual" recycling system and that the MCD system "could not mirror any one particular real-life recycling system", it would seem that a given material's impacts on the cost of recycling system activities would be directly correlated to its volume relative to other materials, and would be significantly different in a deposit vs a non-deposit system. For example, in a system which manages only non-beverage cartons due to the existence of a deposit system on all beverage containers (currently the case in Saskatchewan and soon to be the case in British Columbia), cartons would have an expected lower relative impact on the system due to the low volumes. Related to the point above, we are unclear whether and to what extent the relative mix of material categories impacts the MCI. In other words, does the MCD methodology consider a standard mix of			for assigning "Emerging Grade" to the polycoat category was explained to CCC's Managing Director at the July 24th call, we feel it is important to re-iterate that an official ISRI-sanctioned grade has been in existence for food and beverage cartons since 2011. While some carton end-markets also accept other polycoated materials (such as hot beverage cups) – typically North American mills with deinking capabilities – it is our understanding that this is very much on a case-by-case basis. CCC would like to better understand whether and how the MCD system's inclusion of other polycoated materials in this grade affects the MCI values assigned to both carton types (gable top and aseptic containers). CCC would like to commend CSSA for the quality and the thoroughness of the work conducted on the MCD project.	With respect to your first observation and question about a standard mix of materials, we offer the following explanation: The MCD conceptual system is comprehensive and is indeed based on a standard mix of the full range of materials targeted for collection, including packaging that may be on deposit in some jurisdictions. In this way, the MCD system accounts for all the activities necessary to prepare the materials for repurposing and their associated relative cost impacts. However, the impact measurements, (which ultimately determine each material categories' value and position on the MCI), are taken for each individual MCD material category's set of characteristics, as they are expressed within each module. These measurements use the standardized metrics such as cart density, compacted density, area weight, manual pick rate, etc. The metrics that are used to

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	materials in the collection truck when determining relative impacts? We look forward to discussing these points in further detail at a future meeting between the CSSA MCD team and CCC and its interested members, as proposed by CSSA. In reference to Appendix E: Matrix of Material Categories and Modules, we are unclear as to why certain materials, including cartons, are assigned to the "Quality Control on the Optically Sorted Mixed Paper" module (i.e. why they are assigned the cost pertaining to this activity), while others are not. We would argue that all materials should assume some costs pertaining to this activity. As an example, HDPE Nat. Bottles & Jugs (both Beverage and Dairy Beverage) have been included as part of the "QC Optical Sort Mixed Paper" Module, but HDPE Colour Bottles & Jugs (both Beverage and Dairy Beverage) have been excluded We look forward to further discussion on this point as well.				measure the characteristics are not dependent on the relative quantity and mix of all of the MCD material categories, and in turn are not affected by them. Having said this, separate MCD material categories for beverage containers and non-beverage containers are defined when the measured impacts for these are different as they have different characteristics. For example, the impacts of PET Beverage Bottles and Jars were measured to be different from those of PET Non-beverage Bottles and Jars. The density of non-beverage bottles is greater than that of beverage bottles and even more different than lightweight PET bottles e.g. thin walled 500 ml water bottles. The non-beverage bottles are quite varied and tend to be thicker walled. Notwithstanding these different impacts, the measurements are standardized and are conducted on

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					each separate MCD category and therefore are not affected by the relative quantity and mix of these materials. In the case of cartons, measurements from the study collection operation were made with a mix of both beverage and non-beverage cartons (only wine and spirit were on deposit in the province where the tests were conducted). This is because the range of cartons used for beverages and those used for other non-beverage products, such as soups and mixes tend to be very similar, i.e., the same aseptic cartons were observed to be used in both applications and the gable-top cartons used in both applications were also observed to be very similar. Therefore, the measurements of density and area weight, etc. were expected to be very similar, such that there is no measurable difference between the impacts of beverage and non-beverage aseptic cartons and no measurable difference between the impacts of beverage and

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					non-beverage gable-top cartons. Accordingly, measurements for cartons would not differ between jurisdictions in which cartons are on deposit and those in which they are not on deposit, and the MCI input would be the same. It is the Four Step Fee Methodology that accounts for differences between jurisdictions because this is where the total quantities supplied and managed come into play. The MCD Methodology, in its Maintenance component, requires that we monitor the characteristics of materials in the marketplace (among other things). Should differences emerge in the characteristics of beverage and non-beverage gable-top and cartons, this would demand we add new MCD study categories. With respect to your question about Appendix E we offer the following response: Only materials that tend to flow together over the mixed paper screens are subject to the QC Optical Sort Mixed Paper and/or the QC Manual Sort Mixed Paper modules. They need to be

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					separated for mixed paper to meet specifications for repurposing and to enable the “misdirected” materials to be recovered for repurposing. These materials tend to flow together because they have some combination of characteristics that cause them to behave similarly, such that the screens cannot separate them. They may be two dimensional or may become two dimensional during collection, tipping or pre-sorting because they are compressible. Or, they may be friable and light and therefore travel with the fibre materials. A Material Category Test* was conducted on materials that tend to be misdirected in which the proportions of each material flowing with the mixed paper were measured. Materials that were observed to flow with the mixed paper stream consequently participate in the QC module. The test demonstrated that a portion of cartons were observed to flow with the mixed paper, and therefore they

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					participate in the QC Module and are assigned measurements according to their Area Weight and their proportion flowing with the mixed paper**. However, Coloured HDPE Bottles and Jugs and Steel Containers were not observed to flow with the mixed paper in measurable quantities and therefore do not participate in the QC modules. * The material category test was conducted in a real facility with key attributes (materials, equipment, throughput) similar to the MCD System and fifty tonnes of material. ** It should be noted that the QC modules are the only modules in which quantity is considered in determining the MCDI. Even then, it is not the mix of materials, rather only the portion of each material present, which is considered. Thus, the corresponding metrics for Optical Sorting (Area Weight) and Manual Sorting (Manual Pick Rate) for each material are “weighted” by the corresponding proportion of each material’s presence.

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					With respect to your question about emerging grade and polycoat containers we offer the following response: All materials that are targeted by the MCD System must be sorted to be prepared for repurposing and the MCD System is designed to employ existing or emerging technology to do so. The repurpose- ready commodity specifications define the extent of sorting required for each material within the MCD System. Notwithstanding the existence of an ISRI grade for cartons alone, the fact that existing mills can receive and repurpose the mix of cartons and other polycoat materials without the need for further sorting, even on a case by case basis, meets the definition of “repurpose”. Moreover, since the mix of cartons and other polycoat materials can be sorted for repurposing using existing technology, i.e., optical sorting, and since this is increasingly being done to meet the objectives of recovering this

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					broader range of materials, the mix of cartons and polycoat materials is defined as the repurpose-ready commodity for these materials in the MCD system. The MCI values for cartons and other polycoat materials are determined according to the modules in which they participate and are assigned measurements. The measurements for cartons are independent of all other materials. Similarly, the measurements for other polycoated materials are independent of all other materials. Separation of other polycoat containers and cartons to meet the ISRI 52 grade would require an additional, secondary, likely manual sorting step after the initial optical sort and this would mean additional sorting impacts attributed to cartons, with the likely result of increasing its value within the MCI.

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Food & Consumer Products of Canada	An important element of the fee setting methodology is ensuring stewards pay their fair share for the materials in the system, and that the methodology reflects variances of how materials impact system operations and costs. FCPC supported the use of the Activity Based Costing (ABC) mechanism when it was developed and recognizes that given changes in the market and material composition ABC no longer provides the fairness it was designed to offer. The Material Cost Differentiation (MCD) initiative, was developed with engagement and input from a range of producers, including a number of FCPC members, and FCPC supports the inclusion of the MCD to replace ABC, in order to ensure costs are fairly attributable. The MCD is objective, replicable and verifiable.			As it is expected to impact fees, and specifically as it will impact the in-kind contribution offered to municipalities, FCPC recommends Stewardship Ontario develop a communications strategy to respond to potential concerns or public questions about the impact on some system partners.	Thank you for your support of the MCD Methodology.
New Media Canada	We agree that the principles outlined seem fair, but were not complete. We have suggested another principle #9, namely that: *Contamination by other materials should not be a burden to one*	No, it is not at all clear. The explanation became more opaque and difficult/impossible to follow part way through Section 9. A	Yes, the pre-read was very helpful, but honesty, we could not explain this to anyone without real numbers to explain how the bottom line is calculated for each material. We	We need to see a worked-up example for all materials, or at least one material in plastics, paper packaging, printed paper, glass and metal, to understand what factors	With respect to your suggestion that an extra principle is needed, we offer the following response. Both Guiding Principles #3 and #4[5] were designed to address the very concern that

[5] Principle 3: **All materials characteristics count**. When differentiating the cost impacts of one material as compared to another, all of a material's characteristics that can reasonably be measured, should be measured because each material's characteristics can impact costs in different ways.

Principle 4: **All activities count.** All activities necessary to prepare the material to be repurposed should be considered because the intention is that all materials supplied into the market should be repurposed.

Organization	Do you agree that the MCD Methodology is sufficiently principle-based, fair, defensible and comprehensive?	Is it clear how the MCD methodology will be applied and how it will contribute to fee setting?	Did you find the pre-read and other project materials helpful and will you be able to use them to brief your colleagues? If not, what additional materials would be helpful?	What else do you want to tell us about the proposed Material Cost Differentiation Methodology?	CSSA Response
	material and contamination removal costs should be fairly allocated between the material being prepared for market and the material causing the contamination. Page 14 of the pre-read document comments that because of its flat shape, a plastic package can find its way into the fibre stream. Newsprint should not have to pay for clean-up of plastics mixed in the newsprint because CSSA has modelled a 360 litre cart based single stream (Page 20 and elsewhere), and then mis-directed into the fibre stream because of the flat plastic package shape. The flat plastic package then needs to be separated from fibres to clean up the fibre stream to meet market specs (this example is cited Page 14, 21 and an example of a lightweight PET bottle misdirected to the mixed paper stream on page 22). Most or all of the clean-up costs should be assigned to plastics in particular. Capital and operating costs of screens should at least be shared between ONP and plastic, but all be assigned to ONP.	real-life worked example would have helped considerably and we strongly suggest that examples worked up for each material be added.	consider this an essential next step.	impact on the bottom line by module and material. The webinar and to some extent the pre-read is quite repetitious and assumes that people are not following along. We are following along fine but need more actual numbers to get our heads around how these calculations impact on our own materials.	you articulate in the proposed Principle #9. These instruct us to account for all activities necessary to ready a material to be repurposed and to account for all characteristics of a material that require those activities so that cost impacts are accurately measured and appropriately attributed. By respecting Principles 3 and 4, Newsprint assumes only the portion of the quality control sorting costs that reflect its characteristics. Newsprint does not assume the cost impact of sorting, for example, the PET Thermoforms or PE Rigid Containers and Lids that find their way into the Mixed Paper stream. Fibre screens are used to separate two-dimensional materials, such as corrugated cardboard and newsprint, from other materials, primarily plastic, metal and some paper packaging. The screens exploit the two-dimensionality and size of a fibre target material such as a large corrugated cardboard or smaller corrugated cardboard, newsprint and boxboard, to separate them from the rest of the stream. The effectiveness of the screens and the relative utilization of them is determined by the area weight of each of the individual fibre materials screened off and in this case the

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					cost impacts are entirely attributed to fibre . The Area Weight metric is explained more fully below. Quality Control (QC) sorting of mixed paper is required because the fibre screens alone cannot separate materials sufficiently. Some plastic, paper and metal packaging tend to flow with the mixed paper over the screens because they share some combination of characteristics, either the packaging is two-dimensional like newsprint, or it becomes two-dimensional during the collection, tipping and pre-sorting process or because it is light and is entrained with the various fibre materials, like newsprint. These materials must be separated to enable the mixed paper to meet the market specifications and for the packaging to be effectively recovered. The QC modules (Module 10 – QC Optical Sort Mixed Paper and Module 11 – QC Manual Sort Mixed Paper) together represent a small component (only 3%) of the overall system resources and assign cost impacts to each of the 23 of the 36 MCD Material categories, not only newsprint. The impacts are determined using the

Organization	Do you agree that the MCD Methodology is sufficiently principle-based, fair, defensible and comprehensive?	Is it clear how the MCD methodology will be applied and how it will contribute to fee setting?	Did you find the pre-read and other project materials helpful and will you be able to use them to brief your colleagues? If not, what additional materials would be helpful?	What else do you want to tell us about the proposed Material Cost Differentiation Methodology?	CSSA Response
					appropriate module metrics (area weight for optical sorting and manual pick rate for manual sorting) and the corresponding measurements for each participating material. The measurements express how the material characteristics impact system resources. Thus, each of the materials that require the resources of the QC modules generate impacts that are directly related to their characteristics. Finally, a note about how the eight MCD guiding principles were developed. They were created by a Guiding Principles Working Group, composed of a "steward" delegate from each of the four Packaging and Paper Product program Boards of Directors over the course of two workshops held in early 2017. They were subsequently carefully reviewed by the Steward Consultation Committee shared with the entire steward community first in July 2017 and then again during the 2017 Annual Steward Meeting, thus providing numerous opportunities for comment. They have actively guided the work of the project team during the development of the MCD Methodology.

Organization	Do you agree that the MCD Methodology is sufficiently principle-based, fair, defensible and comprehensive?	Is it clear how the MCD methodology will be applied and how it will contribute to fee setting?	Did you find the pre-read and other project materials helpful and will you be able to use them to brief your colleagues? If not, what additional materials would be helpful?	What else do you want to tell us about the proposed Material Cost Differentiation Methodology?	CSSA Response
					With respect to your request for an example, we would be pleased to walk Newsprint stewards, both newspaper publishers and retailers, through a detailed example of how the MCI is used as an input to the Four Step Fee Methodology and in setting fees. Further, we would also be pleased to walk Newsprint stewards, both Newspaper publishers and Retailers, through a detailed discussion of how the Newsprint MCI compares to other materials and its corresponding impact on fees. We have been open to requests from all stakeholders throughout the consultation process and have hosted similar meetings with Restaurants Canada, Carton Council and Canadian Beverage Association. We will be in contact to arrange a meeting with Newsprint stewards now that you have indicated your interest in learning more about the MCI.

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City of Toronto	○ Opposes proposal to implement a new fee setting methodology during the wind-up of the Blue Box Program, ○ Questions the merit and timing of the change given that such a change directly impacts the amount of cash payments to municipalities through substantial changes to the amount allocated to in-kind lineage without sufficient rationale and documentation of the change from the previous to current proposed model to be followed in the wind-up plan. ○ Implementing such a change now complicates the transition plan.	CSSA notes concerns about the MCD Methodology's impact on in-kind payments to municipalities. They will be carefully considered by Stewardship Ontario's Board during its deliberations on whether to approve the MCD Methodology for use in Ontario. Regarding the concern about conflict of interest, CSSA was established by the steward community to provide harmonized administrative and management

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	○ Conflict of interest given's CSSA's involvement in the new methodology presents concerns about the perception that CSSA and SO are not necessarily operating at arms length.	services to all stewardship programs. Both the Four-Step Fee Methodology and the MCD Methodology projects are examples of how it fulfills its harmonization mandate to stewards and complies with its contractual obligations to Stewardship Ontario, Recycle BC, MMSW and MMSM.
County of Simcoe	○ Concern regarding the proposal to implement a new fee setting methodology during the wind-up of the Blue Box program and the increase in in-kind payments instead of cash payment; we feel strongly that all payments should be cash contributions and not in-kind.	CSSA notes concerns about the MCD Methodology's impact on in-kind payments to municipalities. They will be carefully considered by Stewardship Ontario's Board during its deliberations on whether to approve the MCD Methodology for use in Ontario.
City of Hamilton	○ Stewardship Ontario's proposed fee setting methodology during the wind-up of the Blue Box program is a concern. ○ Municipalities want to ensure that they receive fair payment for all applicable costs associated with delivering the Blue Box program during the transition period.	CSSA notes concerns about the MCD Methodology's impact on in-kind payments to municipalities. They will be carefully considered by Stewardship Ontario's Board during its deliberations on whether to approve the MCD Methodology for use in Ontario.
Lutron Electronics Company Inc.	○ Stewardship Ontario should do what is necessary to keep the Blue Box program viable during the transition following the direction and guiding principles of the Ministry. Lessons learned from any changes in fee setting methodology and allocation of system costs should be made available to producers and PROs they transition to assuming funding and operational responsibility for continuing the Blue Box program into the future. ○ Whatever methodology is used, fee accommodation, protection and incentivization should be considered for handling/recovery of materials with long life cycles (e.g. 10-20 years +) compared to the vast majority of waste which is understood to be in the 1-5 year life cycle range.	Thank you for your comments.
Carton Council of Canada	○ We support Stewardship Ontario proceeding with the implementation of the four-step methodology, in order to harmonize fee setting in Ontario with the other packaging and paper stewardship programs who are serviced by CSSA. ○ We support the replacement of the Activity Based Costing (ABC) methodology used for allocating system costs with the Material Cost ○ Differentiation (MCD) methodology, as presented by CSSA to stakeholders on June 25th	Thank you for your comments in support of the MCD Methodology.
AMO, City of Toronto, Regional Public Works Commissioners of Ontario (RPWCO) and the Municipal Waste Association	○ Concerned about the proposed implementation of a new fee setting methodology for two reasons: ○ It appears to illustrate a real, perceived or potential conflict of interest for CSSA's proposed fee setting methodology to be a part of Stewardship Ontario's wind-up process. There are a number of slides that discuss CSSA's work on how materials impact recycling costs in SO's presentation and it adds a level of complexity to the process that is not necessary ○ Municipal governments strongly oppose Stewardship Ontario's proposal to implement a new fee setting methodology during the wind-up of the Blue Box program as the adoption of the new methodology will double the amount of in-kind payments municipal governments would receive as part of the Steward	Regarding the concern about conflict of interest, CSSA was established by the steward community to provide harmonized administrative and management services to all stewardship programs. Both the Four-Step Fee Methodology and the MCD Methodology projects are examples of how it fulfills its harmonization mandate to stewards and complies with its contractual obligations to Stewardship Ontario, Recycle BC, MMSW and MMSM. CSSA notes concerns about the MCD Methodology's impact on in-kind payments to

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	Obligation instead of cash due to the cost of managing newspapers being under-allocated in previous years. However, no rationale or data to support why this change has occurred from the previous model to this model could be provided when requested. We believe the idea that newspaper management costs would double when all data points to rapidly decreasing amounts of newspaper in the system seems incredibly counter-intuitive. ○ While we understand the interest in updating an older model, the implications of this change, the lack of a rationale to explain the significant change in results and the added complexity this change would bring to this wind-up process cannot be supported. This change in methodology will directly impact municipal budgets and costs of the program to residents. Furthermore, the timing is unfortunate where Stewardship Ontario is proposing to introduce this new formula in a transitory period with little consultation and insufficient rationale	municipalities. They will be carefully considered by Stewardship Ontario's Board during its deliberations on whether to approve the MCD Methodology for use in Ontario. On July 7, 2020 CSSA supported Stewardship Ontario in a meeting with the Ontario municipal sector to review the MCD Methodology and its impacts on newsprint. During that meeting there was a fulsome discussion about the impacts of Stewardship Ontario implementing both the Four-Step Methodology and the MCD Methodology. Based on 2020 inputs, in-kind payments from newspaper publishers would increase by $3.5M. 2020 fees calculated using the Three Factor Formula and Activity Based Costing (density and composition updates only) result in municipalities receiving $4.9M in-kind (i.e., newspaper advertising lineage in lieu of cash) and $130.3M in cash payment for recycling packaging and printed paper. Had 2020 fees been calculated using the Four-Step Fee Methodology and the MCI input, the In-Kind portion would have been $8.4M and the cash payment to municipalities would have been $126.8M. While the Material Cost Index value for newsprint is relatively low, (it ranks 6th on an index of 36 material categories) new measurement metrics, protocols and full costing for all obligated materials means that the MCD Methodology, together with the Four-Step Fee Methodology, does shift additional cost to newsprint.
Electronics Product Stewardship Canada	○ EPSC recommends maintaining the current fee methodology through transition and wind up in Ontario. During this time SO will be using up surplus funds which were generated using the existing fee methodology. ○ The proposed MCD Methodology may be an improvement over the current activity-based costing model, due to guiding principles and the addition of commodity values to the formula. However, it is difficult for us to review how the new methodology is built and how it impacts individual materials and steward costs using the fee calculators provided by CSSA. ○ The MCD methodology is too complex. It would be helpful to have last years packaging weight data, including the total weights in each material category, and last years average commodity values, run through both methodologies to see the impact. ○ The simpler the framework, calculations or methodology are, the simpler and more cost efficient the administration of your program will be. EPSC supports a transparent and efficient framework. ○ It is clear that a great deal of work has gone into developing the MCD proposal. It is less clear if the costs of administering the new model are worth the change. We support a clear and transparent process that is supported by best practices.	Thank you for your comments. We regret that EPSC members did not find the fee calculator tools helpful. The tools were designed to provide stewards of each of the programs with an order-of-magnitude variance in fees by comparing each program's current approach with the new approach using the 2020 fees rates. They simply require a steward to input their 2019 material quantities into the calculator tools provided here. Thank you for the suggestion to apply last year's packaging weight data together with commodity revenues. However, this data will not provide EPSC members with information about how the Material Cost Index values will affect their fee rates. The application of commodity revenue represents Step 2 of the Four-Step Fee Methodology, which is outside the scope of the MCD Methodology project.

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Retail Council of Canada	○ RCC supports replacing the Activity Based Costing (ABC) Methodology with the proposed Material Cost Differentiation (MCD) Methodology. Given the age of the ABC Methodology, RCC believes the MCD Methodology is more comprehensive, has strong guiding principles and better reflects the current state of technology and materials in the marketplace. ○ With this in mind, RCC recognizes that the new methodologies will impact how costs are allocated among material categories and fees paid by stewards in cash or in-kind. Given the potential for challenges with municipalities as a result of the MCD Methodology, RCC wonders if the introduction of the methodology could be delayed until 2022 in order to fully understand and assess the cost impact for municipalities. A 2022 phase-in date for the methodologies could be included in the wind-up plan. This would allow programs in BC, Saskatchewan and Manitoba to implement the methodologies first and better identify its impacts, with Ontario being onboarded a year later given the complexities of transition. This approach would further protect the methodology developed by stewards for years from being questioned politically.	Thank you for your comments in support of the MCD Methodology. The suggestion to phase in the implementation of the MCD Methodology to mitigate the cost implications for some stewards is appreciated and will be carefully considered.
Canadian Beverage Association	○ The CBA strongly supports the implementation of the four-step fee methodology in Ontario. It aligns with the CBA's stewardship principles to: ○ distribute recycling system costs in an accurate and equitable manner; ○ allocate commodity revenue to those materials responsible for generating the revenue; and, ○ ensure no cross-subsidization among material categories ○ CBA supports the modernization of the costing methodology by transitioning from the Activity-Based Costing (ABC) methodology to the Material Cost Differentiation (MCD) methodology. A significant amount of work went into the development of the MCD over the past couple of years that involved the time and dedication of CBA members, as well as the members of the Retail Council of Canada and Food & Consumer Products Canada. ○ Our association agrees that replacing the ABC with the MCD methodology will provide a clearer, more comprehensive and transparent way to assess the cost impacts to manage each material in the recycling system. Like all good scientific approaches, the MCD is based on defensible assumptions and is supported by procedures that are easily replicated. ○ By moving forward with both the four-step fee and MCD methodologies, Ontario can harmonize requirements with other provinces and deliver a fairer, more effective system leading up to and during transition to the new producer-responsibility regulation.	Thank you for your comments in support of the MCD Methodology.
City of Ottawa	○ Municipal governments support the emphasis being placed on ensuring the avoidance of a real or perceived conflict of interest. However, we are concerned about the proposed fee setting methodology for two reasons: ○ It appears to illustrate a real, perceived or potential conflict of interest for CSSA's proposed fee setting methodology to be a part of Stewardship Ontario's wind-up process. There are a number of slides that discuss CSSA's work on how materials impact recycling costs in SO's presentation.	Regarding the concern about conflict of interest, CSSA was established by the steward community to provide harmonized administrative and management services to all stewardship programs. Both the Four-Step Fee Methodology and the MCD Methodology projects are examples of how it fulfills its harmonization mandate to stewards and complies with its contractual obligations to Stewardship Ontario, Recycle BC, MMSW and MMSM.

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	○ It adds a level of complexity to the process that is not necessary. ○ Municipal governments strongly oppose Stewardship Ontario's proposal to implement a new fee setting methodology during the wind-up of the Blue Box program ○ Stewardship Ontario has indicated that this change to the fee setting methodology will double the amount of in-kind payments municipal governments would receive as part of the Steward Obligation instead of cash. Stewardship Ontario has indicated that this is due to the cost of managing newspapers being under-allocated in previous years. However, no rationale or data to support why this change has occurred from the previous model to this model could be provided when requested. ○ We believe the idea that newspaper management costs would double when all data points to rapidly decreasing amounts of newspaper in the system seems incredibly counter-intuitive. ○ While we understand the interest in updating an older model, the implications of this change, the lack of a rationale to explain the significant change in results and the added complexity this change would bring to this wind-up process cannot be supported. This change in methodology will directly impact municipal budgets and costs of the program to residents. Furthermore, the timing is unfortunate where Stewardship Ontario is proposing to introduce this new formula in a transitory period with little consultation and insufficient rationale to validate the reasonableness of the conclusions they are putting forward.	CSSA notes concerns about the MCD Methodology's impact on in-kind payments to municipalities. They will be carefully considered by Stewardship Ontario's Board during its deliberations on whether to approve the MCD Methodology for use in Ontario.
CCSPA	○ Some of our members did participate in the MCD webinar and are currently evaluating the directional change in fees with the calculator that has been provided to stewards. ○ In general, we are in support of any improvement that fairly assigns fees to packaging categories.	Thank you for your comments in support of the MCD Methodology. We are pleased that CCSPA members are find the calculator tools helpful.
Food & Consumer Products of Canada	○ FCPC supports the proposal to include the four step fee setting methodology, bringing Ontario in line with Blue Box programs in British Columbia, Saskatchewan and Manitoba. Including the four step fee setting methodology in the Plan increases ease of use and fairness for stewards, and alignment among the provincial programs. FCPC recommended the inclusion of the four step methodology when it was first proposed in 2016, and supports its inclusion now. ○ An important element of the fee setting methodology is ensuring stewards pay their fair share for the materials in the system, and that the methodology reflects variances of how materials impact system operations and costs. ○ FCPC supported the use of the Activity Based Costing (ABC) mechanism when it was developed and recognizes that given changes in the market and material composition ABC no longer provides the fairness it was designed to offer. ○ The Material Cost Differentiation (MCD) initiative, was developed with engagement and input from a range of producers, including a number of FCPC members, and FCPC supports the inclusion of the MCD to replace ABC, in order to ensure costs are fairly attributable. The MCD is objective, replicable and verifiable. ○ As it is expected to impact fees, and specifically as it will impact the in-kind contribution offered to municipalities, FCPC recommends Stewardship Ontario develop a communications strategy to	Thank you for your support of the MCD Methodology.

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	respond to potential concerns or public questions about the impact on some system partners.	