

# CARE California Carpet Stewardship Program

Differential Assessment Approach

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## I. Executive Summary

In adherence to the statutory requirements of California AB 729, CARE engaged in the process to evaluate and design a system of differential assessments. CARE developed a project plan, divided into four phases, and established five guiding principles as foundation to a design of differential assessments:

- I. CARE seeks to comply with all requirements of AB 729
- II. CARE seeks to support increasing the program's recycling rate
- III. CARE seeks to design a system that is understandable and implementable at scale
- IV. CARE seeks to minimize the burden on retailers and carpet dealers
- V. CARE seeks to validate all conclusions reached with supporting data

CARE integrated data from participating recyclers, mills, CARE's internal financial models, and additional data from 3<sup>rd</sup> party sources. Utilizing this data, CARE developed a series of scenarios looking at a number of variables. The scenarios generated provided CARE a systematic approach from which to evaluate the inherent complexities in developing a system of differential assessments under AB 729.

In evaluating the results of CARE's scenario analysis, CARE identified the most appropriate carpet material basis on which to implement a system of differential assessments was Broadloom vs. Tile. This conclusion was arrived at after consideration of the requirements under California AB 729, as is further detailed within the following narrative. The approach is both visually and intellectually easy to understand and thus implement versus more complex options considered. All other options introduce significant complexity without any corresponding benefit to the Program.

After determining an approach to consider the amount of post-consumer content contained within a particular carpet material, CARE's system of differential assessments includes four assessment rates as indicated per the table below.

Carpet Material	> Or = 10% Post Consumer Content	< 10% Post Consumer Content
Broadloom	\$0.33 per square yard	\$0.35 per square yard
Tile	\$0.48 per square yard	\$0.50 per square yard

## II. Introduction

### a. Project Background

Signed by the Governor of California on October 9, 2019 and effective as of January 1, 2020, California Assembly Bill No. 729 (hereafter “AB 729”) modifies the “funding mechanism” under which a carpet stewardship plan in the State of California shall be constructed. The paragraphs in AB 729 specifying the requirement to establish a “system of differential assessments” reads as follows:

*“(c) (1) In recognition that the material makeup and construction of postconsumer carpet affects the technical and economic recyclability of carpet, the funding mechanism required pursuant to paragraph (4) of subdivision (a) shall establish and be composed of a system of differential assessments that takes into account the financial burden that a particular carpet material has on the stewardship program, and the amount of postconsumer recycled content contained in a particular carpet. Based on market history and modeling, if a certain carpet material requires a higher subsidy to incentivize use in the marketplace, then that material shall have a proportionally higher assessment assigned to it. The assessment shall be remitted to the carpet stewardship organization on a quarterly basis and the carpet stewardship organization may expend the assessment only to carry out the plan.*

(2) The amount of the assessment and the anticipated revenues from the assessment shall be specified in the plan and shall be approved by the department as part of the plan. The amount of the assessment shall be sufficient to meet, but not exceed, the anticipated cost of carrying out the plan. The amount of the assessment shall not create an unfair advantage in the marketplace.”<sup>1</sup>

In seeking to adhere to the requirements of the law, the following document intends to specify the definitions, assumptions and approach applied by CARE in the determination of a system of differential assessments.

Where applicable, CARE utilized definitions as defined within AB 729 (See Appendix B). For those terms that were undefined within the statute, CARE next applied definitions included within the approved California Carpet Stewardship Plan 2018-2022 (Hereafter “CARE’s 2018-22 Plan”) (See Appendix C). For those terms and concepts that remained undefined after review of AB729 and CARE’s 2018-22 Plan, CARE established working definitions for application within the determination of a system of differential assessments as defined herein.

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<sup>1</sup> California Assembly Bill No. 729: Chapter 680

## **b. Guiding Principles of Project**

In the determination of a system of differential assessments, CARE adhered to the same guiding principles that govern CARE's ongoing operations in pursuing CARE's mission to "advance market-based solutions that increase landfill diversion and recycling of post-consumer carpet, encourage design for recyclability, and meet meaningful goals as approved by the CARE Board of Directors" and CARE's vision that "post-consumer carpet landfill diversion and recycling are economically, socially, and environmentally sustainable for all stakeholders."

Consistent with these principles, CARE set forth five additional guiding principles to aid the development of a system of differential assessments:

- I. CARE seeks to comply with all requirements of AB 729
- II. CARE seeks to support increasing the program's recycling rate
- III. CARE seeks to design a system that is understandable and implementable at scale
- IV. CARE seeks to minimize the burden on retailers and carpet dealers
- V. CARE seeks to validate all conclusions reached with supporting data

### III. System of Differential Assessments: Timeline

#### a. Section I: Timeline Overview

CARE initiated the process to evaluate and design a system of differential assessments, as required under AB 729, beginning in early 2020. An initial timeline was established with a deadline of November 30, 2020, at which point, CARE would present the system of differential assessment to the Advisory Committee and then CalRecycle for comment and approval. Subsequent to the development of the initial timeline, the timeline was modified in consideration of the impact of the COVID-19 pandemic and a revised deadline of June 30, 2021 was approved by CalRecycle. See Figure 1 below.

#### b. Section II: Project Phases

CARE sub-divided the development of a system of differential assessments into four “phases.”

- **Phase I: Prepare working definitions:** The objective of Phase I was the documentation of terms and concepts included within California AB 729 that would be incorporated within the system of differential assessments.
- **Phase II: Construct Sub-models:** The objective of Phase II was to construct a framework and build sub-models for significant concepts included within AB 729 that would factor into the construction of a differential assessments model.
- **Phase III: Construct Differential Assessments model:** The objective of Phase III was to define the mathematical relationships between the various sub-models and to build a mathematical model applying factors as required under AB 729 to generate scenarios to allow CARE to evaluate differential assessment options. **Note:** Throughout the following narrative, the model developed during this phase will be referred to as the CARE Differential Assessment Model (“CDA Model”).
- **Phase IV: Final Review and Acceptance:** The objective of Phase IV was to incorporate changes to the differential assessment model based on feedback from stakeholders, especially the retail community in order to determine a system of differential assessments that is both practical and scalable for comment and approval by CalRecycle.

Figure 1 below presents a timeline of CARE’s differential assessment project during 2020 and 2021. As described above, the initial timeline was modified due to the challenges posed by the COVID-19 pandemic, particularly the major disruption of typical business activities and the uncertainty regarding COVID-19’s long-term economic impact. The modified timeline also presents the understanding that Phase I, II, and III occur in concert, due to the interconnectivity of each phase in constructing the differential assessments model.

Figure 1: Differential Assessments Project Timeline

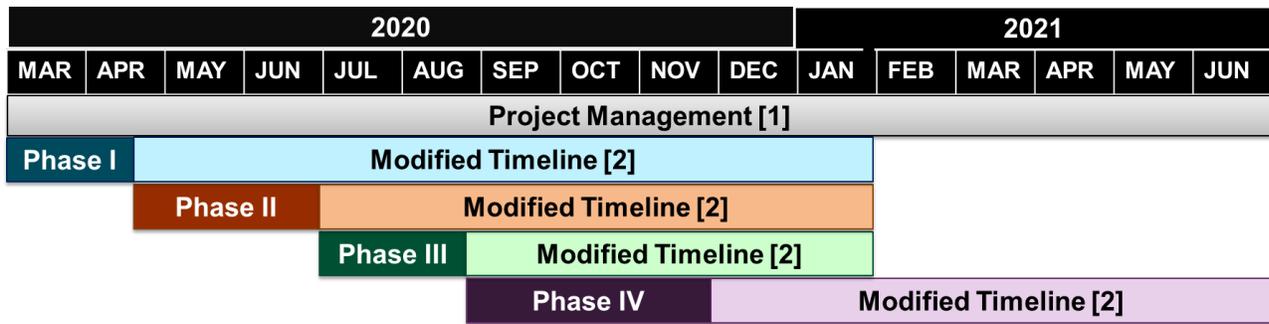


Figure Notes:

[1] Aprio to provide project management support throughout project.

[2] Timeline adjusted to accommodate change of final delivery to 2021 due to COVID-19 (e.g. furloughs and business interruptions) as well as for additional time to understand and observe the impact of the pandemic on the global economy. November 30, 2020 was indicated as part of original project plan.

## IV. System of Differential Assessments: Data

As one of CARE's guiding principles is to "**validate all conclusions reached with supporting data,**" the following Sections provide an overview of the data sources and organization utilized within with the CDA Model.

### a. Section III: Data Sources

In order to evaluate and develop a system of differential assessments under the requirements of AB 729, CARE compiled, organized, and integrated several key datasets. The following section provides an overview of the sources and uses of the data integrated as part of the CDA Model.

- **Recycling Data:** CARE receives monthly reporting from participating CSEs, Processors, and Manufactures (hereafter collectively referred to as "Recyclers"), via CARE's online reporting platform, Planful. Current subsidy rates are uploaded into Planful in order to calculate the monthly subsidy payments to Recyclers on eligible pounds recycled. Based on the Recyclers' reporting within Planful, CARE was able to aggregate the pounds of CA post-consumer (PC) Carpet as it progresses from collection to output along the recycling steam as well as the subsidies paid to Recyclers. Note: If a Manufacturer does not participate in the subsidy program, it is not possible to know details of their costs.
- **Carpet Manufacturers ("Mill") Data:** CARE receives quarterly reporting from Mills selling carpet in the state of California. The quarterly reports from the Mills are submitted via Excel workbooks and provide CARE the ability to aggregate the square yards of carpet sold and the assessments collected for the quarter. Mills report the square yards of carpet sold within the following classifications:
  - Product Sold (2): Carpet Tile, Broadloom ("BL") Carpet
  - Fiber Type (8): Nylon 6,6, Nylon 6, Polypropylene ("PP"), PET, Blended, Wool, Natural, Other
  - Backing (8): EVA, Polyester, Polyolefin, Polyurethane, PVB, PVC, SBR Latex, Other
- **CARE Program Expenses:** On a monthly basis, CARE separately compiles program and administrative expenses and enters the data within CARE online reporting system, Planful.
- **CARE Budgeted Data:** CARE maintains a financial model in Excel (hereafter "CARE's financial model") which incorporates CARE's budget under CARE's 2018-22 Plan and budgeted recycling activity, including the following elements:
  - Budgeted pounds of CA PCC collected, processed, and manufactured into finished goods
  - Budgeted subsidies to Recyclers
  - Budgeted sales of carpet in California by Mills
  - Budgeted assessments remitted from Mills

- Budgeted program expenses paid by CARE
  - Budgeted administrative expenses paid by CARE
- CARE reviews actual reported results and subsidy payments against budgeted projections to better understand recycling marketplace dynamics and to constantly update and refine the financial model.
- **External Data:** CARE utilized external data within the construction and evaluation of a system of differential assessments to the extent that such data was relevant to the CDA Model. Notable sources of data beyond the key data sets described above include the following:
  - Market Insights, LLC: Confidential report prepared for CARE regarding California and U.S. flooring and carpet sale trends.
- **Integration of Complimentary CARE Analyses:** Throughout the differential assessment project timeline, CARE had several teams engaged to conduct analyses of various components of running the program. CARE maintained ongoing communications with these teams throughout the project to ensure that knowledge and information was shared between the teams and integrated where appropriate within the determination and evaluation of a system of differential assessments. Teams included the CARE Differential Assessment “CDA” Team, Model Team (Economic, Cost Conversion, Subsidy Justification and Economic Models), and the Phase 2 independent Economic Study Team (Crowe).

#### **b. Section IV: Data Organization**

Throughout Phases II and III of the development of a system of differential assessments, CARE constructed and refined the CDA Model in Excel, consolidating the various datasets described in Section III above. In order to create a consistent basis from which to evaluate the data, CARE aggregated the datasets on a quarterly basis. By standardizing the data time interval on a quarterly basis, CARE aligned all data to the quarterly reporting frequency from the Mills.

Within the CDA Model, CARE incorporated the following historical data points:

- Historical California carpet sales data and assessments collected
- Historical pounds of CA PCC collected, sold, and shipped that were eligible for CARE collection subsidies
- Historical recycled pounds sold and shipped that were eligible for CARE subsidies and that qualified as Recycled Output (“RO”)
- Historical recycled pounds sold and shipped that were eligible for CARE subsidies and that qualified as Tier 2 Output
- Historical CARE program expenses
- Historical CARE administrative expenses
- Historical CARE subsidy rates

- Historical trends in Residential vs. Commercial carpet sales as compiled by Marketing Insights, LLC

In addition to the historical data integrated within the CDA Model, CARE incorporated the following forecasted data points with the CDA Model.

- Projected California carpet sales data and assessments collected
- Projected pounds of CA PCC collected, sold, and shipped that were eligible for CARE collection subsidies
- Projected recycled pounds sold and shipped that were eligible for CARE subsidies and that qualified as Recycled Output (“RO”)
- Projected recycled pounds sold and shipped that were eligible for CARE subsidies and that qualified as Tier 2 Output
- Projected CARE program expenses
- Projected CARE administrative expenses
- Projected CARE subsidy rates

**c. Section V: Inherent Uncertainty**

CARE noted that the projected data described above includes a level of inherent uncertainty. To the extent that the CDA Model contains forecasted results, CARE noted that the actual results observed may vary from those forecasted. CARE noted the following factors as contributing to the inherent uncertainty within the CDA Model and is seen in other CARE modeling efforts:

- Ongoing economic impact of the COVID-19 pandemic
- Changes in consumer preferences within the flooring industry
- Changes in demand for recycled materials
- Changes in the prices of input components to manufacture carpet (e.g. oil price volatility)
- Changes in the composition and construction of new carpet materials entering the market
- Advances in recycling technology / techniques
- Differential of RO nature and quality based on different technology platforms
- Differential value based on outlets and applications for PCC material streams
- Inherently different cost structures for each individual recycler

**Impact of COVID-19**

CARE routinely monitors and evaluates whether current subsidy levels paid on the various recycled materials are appropriate under current market conditions. During 2020, in consideration of the impact of the COVID-19 pandemic on the polymer markets, CARE implemented a COVID-19 action plan which increased the subsidies paid on certain recycled materials.

## V. System of Differential Assessments: Differential Assessments Basis Options

Utilizing the data described and organized in Sections III and Section IV above, CARE developed functionality within the CDA Model for CARE to run scenarios on potential designs of a system of differential assessments. The following sections will describe the underlying components of the CDA Model as well as scenario generation and evaluation.

### a. Section VI: DA Basis Options evaluated

In consideration of the language included within AB 729 that the CARE's funding mechanism "...shall establish and be composed of a system of differential assessments that takes into account the financial burden that a **particular carpet material** has on the stewardship program, and the amount of postconsumer recycled content contained in a **particular carpet**...", CARE designed the CDA workbook to evaluate various options to serve as the basis of "particular carpet material" (hereafter "DA Basis Options").

In evaluating the DA Basis Options, CARE considered the definition of "carpet material," within the context of AB 729. AB 729 utilizes the term "carpet material" within the following portions of the law:

"(c) (1) ...shall establish and be composed of a system of differential assessments that takes into account the financial burden that a particular **carpet material** has on the stewardship program and the amount of postconsumer recycled content contained in a particular carpet. Based on market history and modeling, if a certain **carpet material** requires a higher subsidy to incentivize use in the marketplace, then that material shall have a proportionally higher assessment assigned to it."<sup>2</sup>

Based on this language, a certain "carpet material" must exhibit consistent characteristics that differentiate the "carpet material" in terms of its financial burden to the stewardship program and required subsidy to incentive use in the marketplace. Therefore, CARE considered the product category (Broadloom vs. Tile), composition (Face Fiber / Backing), and market outlet (Residential vs. Commercial) of carpet within this pretext. Each of these classifications can have an impact on the financial burden and required subsidy to incentive use of a carpet material in the marketplace.

CARE considered the differences between carpet materials employed in various product categories (e.g., Broadloom vs. Tile or backing types) and noted that the construction and their material components within Broadloom or Tile products have an impact on the recovery of the materials for recycling. This consideration has a direct impact on the desirability of the product category to participating recyclers, with Broadloom being easier to collect and to recover the face fibers and backing. Therefore, Broadloom places less of a financial burden on the recyclers and on the program. This is evidenced by the exceptionally low recycling rate for carpet Tile and

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<sup>2</sup> California Assembly Bill No. 729: Chapter 680

the subsequent determination to initiate a Tile Pilot program defined below in addition to numerous attempts to increase its Recycling Rate.

The recycling of Broadloom is seen as a different carpet material vs a carpet Tile in terms of the technology used, the nature of the carpet material RO produced, the quality of the RO and the market outlets available. Contamination is a major factor for high value outlets (e.g. injection molding or depolymerization) and is fundamental tied to the to the carpet material processed.

As CARE performed the following analysis in designing a system of differential assessments, CARE noted that different carpet products within the marketplace exhibited similar characteristics in terms of financial burden and required subsidy, and therefore were defined as one type of “carpet material.”

The primary DA Basis Options that were evaluated as part of design of the system of differential assessments included the following:

- Face Fiber Type (Nylon 6, Nylon 6,6, PET, and Polypropylene (“PP”))
- Residential vs. Commercial
- Broadloom (“BL”) vs. Tile
- Backing Systems

**Primary Face Fibers:** Based on the relative composition of carpet sales, CARE determined to focus on the primary four face fibers (Nylon 6, Nylon 6,6, PET and Polypropylene) as part of the evaluation of a system of differential assessments. CARE noted that these four face fibers have historically represented around 94% of CA carpet sales, whereas carpet sold with blended, wool, natural and “other” face fibers represented less than 6% of carpet sales historically.

In addition to evaluating the DA Basis Options above on a stand-alone basis, CARE reviewed various combinations of the DA Basis Options including:

- Residential vs Commercial + Broadloom vs Tile
- Residential vs Commercial + Broadloom vs Tile + Face fiber type
- Broadloom vs Tile + Face fiber type

### *Complexity Considerations*

As one of CARE’s guiding principles was to seek “to **minimize the burden on retailers and carpet dealers**,” CARE maintained awareness of the potential number of differential assessments generated under each scenario. CARE understood that for each additional differential assessment, there was additional complexity for retailers, dealers, and mills based on the number of potential differential assessments that would need to be calculated, collected, reported, and remitted to CARE. Complexity is expected to greatly increase not only pushback from retailers in particular, but also increases confusion and the expected rate of errors in the selling process. In Figure 2 below, CARE indicated the number of differential assessments under the various DA Basis Options evaluated.

During the in-depth analytical phase of the CDA work, two factors became important in face fiber (or polymer) differentiation considerations:

1. The recent adjustment in subsidies driven by the pandemic resulted in the subsidy for N6 and PET reaching parity. These two polymers were the underlying basis for the language of AB 729. Thus, differentiation based on face fiber type is no longer justified when taking into *account the financial burden that a “particular carpet material”* has since there is no longer a differential financial burden.
2. Analysis showed the complexity of a four tier face fiber based differential along with the requirement to recognize post-consumer content, would result in a 4x2 matrix of assessment levels, before taking into account blends. As a result, 10 or more assessment levels based on carpet material would be untenable in the retail sector.

The same complexity argument may be made for other options considered. Such complexity will result in marketplace confusion and greatly amplify the chances of errors in the selling process and reporting errors, without increasing the recycled output of any carpet material or providing any tangible benefit to the Program. In particular, the seemingly easy residential vs commercial split upon examination is also ambiguous. Some manufacturers classify multi-family under their residential operations, while others classify under commercial. Even within the same company, different lines may cross boundaries.

### *Retailer Feedback*

During the retailer outreach webinars and subsequent survey feedback it became clear that complexity is a critical consideration. Even the simplest 2x2 matrix proposed here is generating concerns. One retailer has indicated via email their decision to exit CA carpet sales due to the costs and time which would be required to implement these changes. Most feedback has been, as anticipated, negative (77%) and here are a few representative responses out of the 75 responses received:

- “ My project management system and accounting system isn't set up to make these splits. it will be highly cumbersome and time consuming to properly make these assessments.”
- “I DON'T HAVE TIME TO DIFFERENTIATE EACH PRODUCT WE SELL FOR THIS STUPID TAX!”
- “Any higher cost to consumer will be a detriment to sales”
- “We will terminate doing business in CA, just not worth the effort.”
- “This is stupid and needs to be shot down! We have way more important things to do with our time than this. We will not implement this in our store to our customers as it is unnecessary to confuse them further on this.”

Figure 2: DA Basis Options (before accounting for PC content)

DA Basis Option	Potential Number of Differential Assessments
Primary Face Fiber Type	4
Residential vs. Commercial	2
Broadloom vs. Tile	2
Backing System	8
Residential vs. Commercial + Broadloom vs. Tile	4
Broadloom vs. Tile + Primary Face Fiber Type	8
Residential vs. Commercial + Broadloom vs. Tile + Primary	16
Residential vs. Commercial + Broadloom vs. Tile + Backing	32
Residential vs. Commercial + Broadloom vs. Tile + Primary	128

Figure 2 Note: As will be further described within the “**Post-Consumer (“PC”) Content Considerations**” section below, the potential number of differential assessments would at a minimum be double what is presented within Figure 2, to account for PC Content if one assumes a binary designation. Of course, it may be argued that 2 or 3 different PC content levels might be recognized, further exacerbating the problem and not contributing towards the increase of recycled output for any carpet material or otherwise benefiting the Program.

**b. Section VII: DA Basis Options Data Considerations**

In compiling the datasets described in Section III above, CARE noted that the data available for each DA Basis Options was not consistent across all options.

Based on the data available from the data relay points along the material flow, the DA Basis Options with the most robust data sets are Broadloom Face Fiber Type and Broadloom vs. Tile. Below is a summary of the data collected from the Mills and Recyclers:

- **Mill Reporting:** Mills report Face Fiber Type, Broadloom vs. Tile, and Backing Systems to CARE. Therefore, the square yards sold can be accurately attributed to these options.
- **Recycler Reporting:** Recyclers report Broadloom by Face Fiber Type and Tile pounds collected and recycled to CARE. Recyclers do not currently report Tile by Face Fiber Type, or the Backing Systems of the materials recycled. Reporting of pounds collected is associated with some uncertainty as recyclers do not incur the time or cost to weigh inbound loads. As a result, they are estimated based on experience (trailer size and average weight per trailer). Recycled output reporting is much more

accurate as recyclers are paid by the pound for sales and thus, must precisely know their output weight.

- Neither the Mills nor Recyclers report Residential vs. Commercial directly to CARE. This is a very subjective determination from one recycler to the next and would result in considerable noise in the data and increase the potential for fraud.

## **VI. System of Differential Assessments: CDA Model: Scenario Construction**

CARE developed a standardized process to design, build, analyze, and evaluate various scenarios for a system of differential assessments within the CDA Model. Each scenario followed the same basic principles of construction and provided CARE the ability to run and evaluate scenarios on the variables discussed below. The CDA Committee met weekly to review, refine and build the models and scenarios.

### **a. Section VIII: Variables incorporated**

In addition to the datasets described in Section III above, CARE incorporated a number of variables that impact the CARE program into the CDA Model. These variables provided CARE with the ability to evaluate various “what-if” scenarios and assess the potential impact of changes within the given assumptions of a scenario.

- Current and anticipated subsidy levels (See Section XV below: **Subsidy Considerations**)
- Variation in recycle rate of each commodity stream
- Estimated Post-Consumer (“PC”) content by product included within projected carpet sales (See Section XVI below: **Post-Consumer (“PC”) Content Considerations**)
- Variation in the assessment rate of each system of differential assessments (See Section XXI: **Assessment Considerations** below)

### **b. Section IX: Identifying Scenario Parameters and Assumptions**

In order to run each scenario, CARE started by identifying the scenario parameters and assumptions:

- Scenario timeframe
- Recycled output dataset to apply
- Mill sales dataset to apply
- CARE program and administrative expense dataset to apply
- DA basis option
- Assessment rates [1]
- Subsidy rates[1]
- Recycling rates of DA Basis Options
- % Carpet qualifying for PC Content Considerations
- Reduction to assessment for products qualifying for PC Content Considerations

[1] CARE maintained functionality within the CDA Model to allow for variations in the Assessment and / or Subsidy rates over the course of the scenario.

### c. Section X: Data Allocation

Based on the information reported by the Mills and Recyclers, CARE noted that there were data points which were not attributed to the specific DA Basis Options being evaluated as part of a particular scenario. In order to construct and evaluate a scenario within the CDA Model, CARE established procedures to allocate data points on a logical basis between the DA Basis Options being evaluated. The following list presents examples of allocation methods applied:

- Square yards of carpet with blended, wool, natural, or “other” face fibers
  - *Face Fiber Allocation*: Allocated to the primary four face fibers (Nylon 6, Nylon 6,6, PET and Polypropylene) based on the relative weight of each face fibers’ sales during the scenario timeframe.
- PC4 Recycled Output
  - *Broadloom vs. Tile Allocation*: Allocated 100% to broadloom.
  - *Face Fiber Allocation*: Allocation based on the relative proportion of Type 1 Output attributed to each face fiber during the evaluation timeframe.

## VII. System of Differential Assessments: CDA Model: Scenario Output and Evaluation

### a. Section XI: Scenario Output

Once the parameters have been set for the scenario, CARE utilized the Excel CDA Model to tabulate, calculate and summarize the scenario output. The scenario output provided a snapshot of the financial and recycling impact on the program based on the DA Basis Options evaluated, parameters set, and variable inputted.

### b. Section XII: Impact of Changes in Assumptions

Changes to the variables or parameters applied within each scenario will impact the scenario outputs. To provide perspective of the magnitude of incremental changes to key variables within the sample scenario, CARE prepared Figure 3 and Figure 4 below.

*Figure 3: Variable Impact Summary: Assessments, PC Content Discount, Recycled Output*

Variable	Basis	Change Increment	Estimated Annual Impact	Estimated Pounds Annual Impact	Notes
Assessment	Broadloom Sales	\$.01	\$569,099	N/A	[1]
Assessment	Tile Sales	\$.01	\$100,759	N/A	[1]
PC Content Discount	50% PET BL Sales 100% Tile Sales	\$.01	(\$259,158)	N/A	[1]
PC Content Discount	70% PET BL Sales 100% Tile Sales	\$.01	(\$318,520)	N/A	[1]
Recycled Output	Broadloom – Nylon 6	1%	(\$326,189)	741,338	[1], [2]
Recycled Output	Broadloom – Nylon 6,6	1%	(\$40,650)	140,172	[1], [2]
Recycled Output	Broadloom – PET	1%	(\$436,449)	1,119,101	[1], [2]
Recycled Output	Broadloom – PP	1%	(\$56,610)	145,154	[1], [2]
Recycled Output	Tile	1%	(\$146,158)	417,595	[1], [2]
Recycled Output	All	1%	N/A	2,563,360	[1], [2]

[1] Subsidy rates effective as of April 1, 2021.

[2] Values calculated on 2022 sales projections as included within CARE's Financial Model (in the example above 2022 sales projections are 68 million square yards.)

Figure 4: Variable Impact Summary: Sales

Variable	Basis	Change Increment	Estimated Annual Impact (yd2)	Estimated Subsidy Impact	Notes
Sales	Broadloom Sales - All	1%	569,099	\$199,185	[1]
Sales	Tile Sales - All	1%	100,759	\$55,377	[1]
Sales	Broadloom Sales - PET	1%	296,808	\$103,883	[1]
Sales	Broadloom Sales – Nylon 6	1%	196,618	\$68,816	[1]
Sales	Broadloom Sales – Nylon 6,6	1%	37,176	\$13,012	[1]
Sales	Broadloom Sales – PP	1%	38,498	\$13,474	[1]

[1] Subsidy rates included within table represent Broadloom at \$.35 per square yard and Tile at \$.50 per square yard.

### c. Section XIII: Recycling Rate Support

As one of CARE’s Guiding Principles is to “*support increasing the program’s recycling rate,*” CARE evaluated the projected recycling rate as part of each scenario. CARE determined that the recycling rate provides the measure of a material’s use within the marketplace. As the recycling rate is based on a material’s sales and that material’s recycled output, the recycling rate can be compared across all materials, regardless of the relative amount of a material within the waste stream.

The formula for the recycling rate as defined in Appendix C is (Recycled Output / Discards), and is dependent on the following two variables within the model:

- Projected sales
- Projected recycled output pounds

In working to meet the Recycling Rate goals as specified within the CARE’s 2018-22 Plan, CARE evaluated the DA Basis Options against the other DA Basis Options as well as the recycling rate goals for 2020, 2021 and 2022. Per CARE’s 2018-22 Plan, CARE has set annual recycling rate goals which increase incrementally from 26% as of January 31, 2020 to 27% as of January 31, 2022.

**Recycling Rate Observations:** In modeling the projected recycling rates for the various DA Basis Options, CARE’s analysis indicates that there is a significant difference in the recycling rate for Tile and Broadloom in modeling both historical data and projected data. Presented in Figure 5a, the recycling rate of Tile for 2019 was 2.5%, whereas the recycling rate of all Broadloom was 22.2%, resulting in a consolidated recycling rate of 19.1% for 2019. Based on actual data reported during 2020, Tile’s recycling rate was

5.1%, whereas Broadloom’s recycling rate was 23.7% for 2020, resulting in a consolidated recycling rate of 20.9%. CARE noted that the recycling rate for Broadloom is aligned with CARE’s goals within the CARE 2018-22 Plan. However, Tile’s Recycling Rate is substantially below CARE’s goals and putting downward pressure on the overall program recycling rate.

*Figure 5a: Base Model Recycling Rates*

Product	Face Fiber	2019 Recycling Rate	2020 Recycling Rate
Broadloom	Nylon 6	14.5%	24.7%
Broadloom	Nylon 6,6	35.3%	41.7%
Broadloom	PP	15.6%	23.7%
Broadloom	PET	27.2%	21.1%
Broadloom	All	22.2%	23.7%
Tile	All	2.5%	5.1%
All	All	19.1%	20.9%

**Recycled Output Composition:** In addition to the observation noted above in respect to the difference between Tile’s and Broadloom’s recycling rates, CARE noted that Broadloom accounted for a disproportional share of the recycled output pounds reported during 2019 and 2020. Per Figure 5b below, during 2019, Broadloom accounted for approximately 97.9% of the recycled output pounds, whereas Tile accounted for 2.1% of the recycled output pounds reported during the year. During 2020, Tile slightly increased its relative proportion of recycled output pounds to 3.6%, indicating Broadloom accounted for 96.4% of the recycled output pounds during the year. As recycled output pounds drive the numerator in the recycling rate calculation, increasing recycled output pounds has a direct impact on the recycling rate.

*Figure 5b: Percent of Recycled Output Pounds*

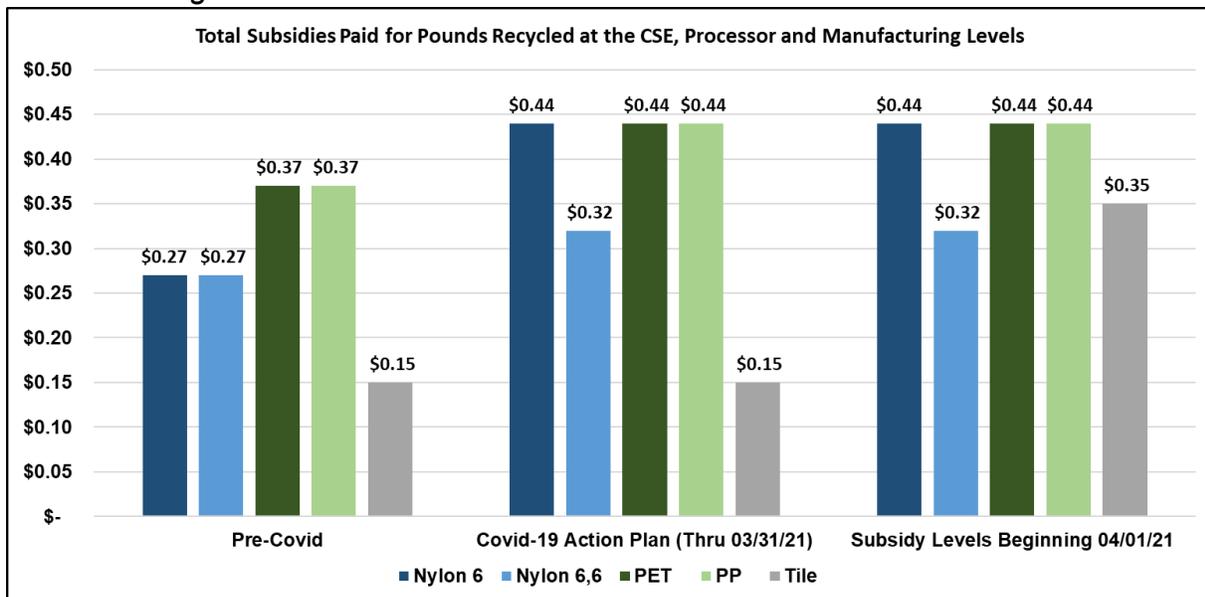
Product	Face Fiber	2019 % of Total Recycled Output	2020 % of Total Recycled Output
Broadloom	Nylon 6	24.4%	33.8%
Broadloom	Nylon 6,6	12.4%	10.0%
Broadloom	PP	4.6%	5.8%
Broadloom	PET	56.6%	46.8%
Broadloom	All	97.9%	96.4%
Tile	All	2.1%	3.6%
All	All	100%	100%

Action Plan: Tile Recycling:

In consideration of CARE’s ongoing efforts to support the increase in the program’s recycling rate, CARE developed a Tile “pilot program,” wherein the subsidy paid to CSEs for the collection, sale and shipment of Tile would increase from \$.05 to \$.15, and the subsidy paid to Processors for Type 1 Output of Tile would increase from \$.10 to \$.20. Therefore, for each pound of tile that is recycled, the potential subsidy increases from \$.15 to \$.35 per pound, an increase of approximately 133%.

As further detailed within Section XIV: **Subsidy Considerations**, this increase resulted in Tile requiring the highest financial burden per square yard to recycle. The Tile “pilot program” launched on April 1, 2021 and will run for an **initial time horizon of 180 days**, at which point CARE will evaluate the effectiveness of the program and determine if further adjustments to the subsidy rate on Tile are required to further incentivize the use of Tile in the marketplace. CARE recognizes commercial tile sales are largely contract project driven, thus the longer timeframe to monitoring impact.

Figure 6: Total Subsidies Paid per Pound Recycled at the CSE, Processor and Manufacturing Levels



[1] See Appendix 1.1 for Subsidies Paid per Pound Recycled ADA Table

**d. Section XIV: Subsidy Considerations**

As prescribed within the language of AB 729, “...Based on market history and modeling, if a certain carpet material requires a higher subsidy to incentivize use in the marketplace, then that material shall have a proportionally higher assessment assigned to it...” CARE conducted an additional analysis on the subsidy rates of Broadloom (by Face Fiber) vs. Tile. For the following analysis, CARE analyzed the relative subsidy paid to recycle a square yard of Tile vs. Broadloom (by Face Fiber). As the composition and construction of Tile and Broadloom result in different average weights, there is a

difference between the two product types in the amounts of pounds flowing through the recycling stream that would be eligible for CARE subsidies. Based on the subsidy rates beginning on April 1, 2021 presented in Figure 6, CARE calculated the average projected subsidies paid per square yard of carpet sold as presented in Figure 7.

*Figure 7: Total Subsidies Paid per square yard (“yd2”) to Recycle*

Carpet Material & Face Fiber	Broadloom - PET	Broadloom - Nylon 6	Broadloom - Nylon 6,6	Broadloom - PP	Tile - All
Pounds per yd2	4.6	4.6	4.6	2.6	5.9
Fiber %	50%	50%	50%	33%	17%
Backing %	50%	50%	50%	67%	83%
Fiber Pounds per yd2	2.3	2.3	2.3	0.9	1
Backing Pounds per yd2	2.3	2.3	2.3	1.8	4.9
Total Fiber Subsidy paid per Pound [1]	\$0.44	\$0.44	\$0.29	\$0.44	N/A
Total Backing Subsidy paid per Pound [1]	\$0.21	\$0.21	\$0.21	\$0.21	N/A
Total Subsidy paid per Pound	\$0.63	\$0.63	\$0.48	\$0.63	\$0.35
Total Fiber Subsidy Paid per yd2 [1]	\$1.02	\$1.02	\$0.67	\$0.39	N/A
Total Backing Subsidy Paid per yd2 [1]	\$0.48	\$0.48	\$0.48	\$0.37	N/A
Total Subsidies paid per yd2 to Recycle	\$1.50	\$1.50	\$1.16	\$0.75	\$2.06
Relative Subsidy Paid per yd2 [2]	0%	0%	-23%	-50%	37%

[1] Tile subsidies are calculated as a whole unit and not separated between face fibers and backing.

[2] Relative subsidies paid per yd2 based on PET and Nylon 6 as base levels.

To extrapolate the magnitude of the difference in the subsidies paid per square yard between the various products, CARE calculated the percent difference between the various products. This calculation indicates whether each product is relatively more expensive (positive %) or relatively less expensive (negative %) than PET and Nylon 6, which were used as the base subsidies. The result of this calculation is presented in the “Relative Subsidy Paid / yd2 Base” row. CARE noted that an average square yard of Tile costs 37% more to the program in the form of subsidy payments, than a square

yard of Broadloom PET or Broadloom Nylon 6. Note, taking 35 cents times 1.37 (37% more expensive) yields 48 cents/yd<sup>2</sup> as the cost burden for Tile.

Figure 8a: Proposed Differential Assessment Levels

Carpet Material	> Or = 10% Post Consumer Content	< 10% Post Consumer Content
Broadloom	\$0.33 per square yard	\$0.35 per square yard
Tile	\$0.48 per square yard	\$0.50 per square yard

**e. Section XV: Post-Consumer (“PC”) Content Considerations**

CARE considered the language of the AB 729, that states that the “*amount of postconsumer recycled content contained in a particular carpet.*” CARE noted that AB 729 specified that the amount of PC content was required to be considered and thus designed a system wherein the assessment on a particular carpet material would be reduced by a fixed amount at the point of sale for products that meet the specified threshold of PC content as a percentage of the weight of the product. AB 729 did not provide any guidance on the level of PC content required to qualify.

CARE determined for simplicity that there would be one threshold to evaluate the eligibility of a particular carpet material for the reduction in assessment. Therefore, CARE has set the eligibility threshold at an average of 10% or greater PC content as a percent of the weight of a square yard of a product. The 10% threshold was set in consideration of precedents for PC content requirements under other programs (e.g., NSF-140), as well as maintaining CARE’s guiding principle to **minimize the burden on the retailers, and carpet dealers**. CARE notes that incorporating PC content within the differential assessment structure requires that there be two potential assessments for every product; those that meet the PC content threshold and those that do not meet the PC content threshold. CARE also noted that that PI content would not contribute towards a product’s 10% threshold.

For products that meet the required threshold, a reduction of **\$.02** per square yard will be applied against the base assessment for that product. CARE believes that the **\$.02** reduction adheres to the requirement that “*The amount of the assessment shall not create an unfair advantage in the marketplace.*”, under AB 729, while increasing consumers’ awareness of products that contain PC content.

In evaluating a price point that would indicate an unfair advantage in the marketplace, CARE considered that carpet is very price elastic and that small increases can factor into purchase decisions. As the assessment reduction for PC content is applied within a particular product category (Broadloom or Tile), the assessment reduction could provide a direct advantage in comparing two products that would be identical with the exception of PC content. In contrast, the differential assessment is applied to different product categories (Broadloom vs. Tile). Consumer preferences are not as elastic in considering a Broadloom product vs. a Tile product, and therefore the price difference

that would indicate an unfair advantage would be greater than for products within a particular product category.

Based on this consideration, CARE determined that \$.02 / square yard would be an appropriate reduction for PC content as this represents approximately 6% of the Broadloom assessment and 4% of the Tile assessment under the proposed system of differential assessments. CARE believes that the reduction of \$.02 / square yard balances the need to communicate to the consumer that a particular carpet has achieved a certain level of PC content while not creating an unfair advantage for a particular carpet.

## **VIII. System of Differential Assessments: CDA Model: Validation of Differential Assessment Basis**

### **a. Section XVI: Validation of Differential Assessment Basis: Overview**

Based on the narrative above, CARE determined that the most appropriate DA Basis from which to design a system of differential assessments based on the requirements of AB 729 would be to have a **differential assessment on Tile vs. Broadloom products**. Below is a summary of the key points in reaching this decision.

### **b. Section XVII: Validation of Differential Assessment Basis: Considerations Around Recycling Rate**

As detailed within Section XIII, CARE evaluated the recycling rate as part of the design of a system of differential assessments. CARE considers the recycling rate to be an indication of a particular carpet material's use in the marketplace. This premise is based on the following considerations:

- The recycling rate calculation connects the relationship between the sales of a particular carpet material and the recycled output pounds attributed to the material.
- The recycling rate provides a basis to evaluate the effectiveness of the particular subsidy to incentive use (recycling).
- The carpet materials derived from a Broadloom carpet vs a carpet Tile are different in terms of their composition, impurity demands (limits), processing technology, yields, and accessible market outlets.

**Conclusions:** In comparing the recycling rates of the Broadloom Face Fibers, CARE determined that there was not enough variation between the Face Fibers to warrant differentiation. However, CARE noted a significant difference in the recycling rate between Tile and Broadloom:

In 2019: CARE calculated the Recycling Rate on Tile to be 2.5% and Broadloom to be at 22.2%.

In 2020: CARE calculated the Recycling Rate on Tile to be 5.1% and Broadloom to be at 23.7%.

The above differences between the recycling rates of Tile and Broadloom, coupled with the subsidy per square yard analysis support Tile vs. Broadloom as the most appropriate basis for a differential assessment under the language of AB 729 and is consistent with all parameters of CARE's Guiding Principles.

Furthermore, in order for CARE to achieve its goals and adhere to its mission, CARE recognized the need to create further incentives for the recycling of Tile in the marketplace. As described in **Section XIV** above, CARE enacted a Tile "pilot program" to increase the subsidy rates per pound of Tile by over 130% beginning on April 1, 2021. Based on the results observed from the "pilot program" over time, CARE will make a determination of whether additional adjustments to the subsidy rate are appropriate. Despite claims of its sustainability, very little tile is currently being recycled out of CA for the past 2 years.

#### **c. Section XVIII: Validation of Differential Assessment Basis: Considerations Around Subsidy Rate**

CARE considers the Subsidy Rate of a particular carpet material to represent its financial burden to the program, as stated in the language of the law. This premise is based on the following considerations:

- Subsidy levels present a direct connection between the recycling incentive required for a particular carpet type and its financial impact to the program.
- Program and administrative expenses are not directly related to the recycling activity of one particular carpet material.
- The subsidy rate provides a basis on which to evaluate the financial burden of a particular carpet material (separate from its recycling rate and absolute dollar cost to the program).
- The recycling rate of a carpet material is a direct result of the appropriateness of its subsidy level.
- Other considerations such as expenses in absolute dollars are inadequate measures of comparison between carpet materials, as they are too dependent on factors such as the varying recycling rates of the carpet materials, the nature of the technology employed (which is different for every recycler) and/or their relative availability in the marketplace for recycling.

From CARE's analysis over Subsidy considerations presented in Section XIV, CARE determined that the most appropriate basis from which to evaluate the relative subsidies of particular carpet materials is average subsidies paid per square yard vs. the subsidy rate per pound. This premise is based on the following considerations:

- The assessment rate is applied per square yard of carpet sold.

- There are differences in the average weight of a square yard for different carpet materials (i.e. in tile vs. broadloom).
- As subsidies are applied on a per pound of recycled output basis, by factoring in the weight of a carpet material, the subsidy rates per pound become comparable between particular carpet materials on a per yard basis.

**Conclusion:** Based on the numbers presented within Figure 7, the relative subsidy per square yard is identical between Broadloom – PET and Broadloom – Nylon 6. As these products represent approximately 86% of actual 2020 sales, CARE notes that Broadloom – Polypropylene and Broadloom – Nylon 6,6 do not represent enough market share to warrant differentiation and would create significant and unjustified complexity. Furthermore, in evaluating the subsidy level of one square yard of Tile in comparison to one square yard of Broadloom, CARE noted a difference of 37%, which, if translated in terms of the assessment would represent approximately \$.16 more per square yard of Tile with Broadloom at \$.35 per square yard.

**d. Section XIX: Validation of Differential Assessment Basis: Considerations for Mills and Retailers**

By establishing a differential assessment on Tile vs. Broadloom products, the implementation at the mill and retailer level is aided by the following factors:

- Based on the current mill and retail classifications of carpet, the determination of products that classify as Tile and those that classify as Broadloom will align with current business processes and present a binomial decision point. This is a distinction that is both intuitive and visually easy to comprehend and implement.
- In contrast, an assessment based on channel (Residential vs. Commercial) adds a level of subjectivity to the application of the applicable assessment rate as described earlier.
- Finally, an assessment based on Face Fiber would increase the potential assessment rates to apply by the retailers and to be reported by mills to at least 8-10 different assessment categories – a degree of complexity fraught with considerable potential for misunderstandings and mistakes that potentially increases the chances for fraud.

**e. Section XX: Validation of Differential Assessment Basis: Differentiation of Assessment Rates**

Under the basis as prescribed under AB 729, "...based on market history and modeling, if a certain carpet material requires a higher subsidy to incentivize use in the marketplace, then that material shall have a proportionally higher assessment assigned to it..." the analysis would indicate that Tile has the highest subsidy to incentivize use in the marketplace, and that at a \$.35 / square yard assessment for Broadloom, the expected assessment for Tile would be at \$.48 / square yard. Although CARE noted that the analysis presents Nylon 6,6 and PP as requiring a lower relative subsidy and correspondingly a lower assessment relative to Nylon 6 and PET, as these products

represent approximately 11% of estimated 2020 sales, CARE notes that the volume of these products is not sufficient to warrant an additional differential assessment. The infeasibility associated with the added complexity of a differential assessment for these products is not justified by any benefit to the program because of their relatively small volume.

Based on this analysis, CARE has determined to differentiate the assessment on Tile at \$.50 / square yard vs. Broadloom at \$.35 / square yard. When the reduction to the base assessments of \$.02 per square yard is factored in for those products that qualify for PC Content considerations, there are a total of four potential assessment rates as presented per Figure 8a.

Due to the unexpected delays of Covid-19, feedback from retailers and software programmers, and an anticipated best-case approval in September, CARE does not believe it is feasible to implement on January 1, 2022. Given the anticipated start-up of a new Plan on January 1, 2023, it would make sense to incorporate the start of differential assessments at that time. **This is a formal recommendation by CARE to implement such a change in the start date.**

*Figure 8b: Differential Assessment Rate Summary*

Carpet Material	> Or = 10% Post Consumer Content	< 10% Post Consumer Content
Broadloom	\$0.33 per square yard	\$0.35 per square yard
Tile	\$0.48 per square yard	\$0.50 per square yard

- END -

## APPENDIX

## Appendix A

### ADA Compliant Tables

#### Appendix 1.1 Total Subsidies Paid per Pounds Recycled at the CSE, Processor and Manufacturing Levels

Product / Face Fiber	Pre COVID-19 Action Plan	Under COVID-19 Action Plan (Thru 03/31/2021)	Subsidies Beginning 04/01/2021
Broadloom, Nylon 6	\$0.27	\$0.44	\$0.44
Broadloom, Nylon 6,6	\$0.27	\$0.32	\$0.32
Broadloom, PET	\$0.37	\$0.44	\$0.44
Broadloom, PP	\$0.37	\$0.44	\$0.44
Tile, All	\$0.15	\$0.15	\$0.35

#### Appendix 1.2 Differential Assessments Project Timeline

Phase	Phase Description	Month Beginning	Month Ending
Phase I	Prepare working definitions	April 2020	January 2021
Phase II	Construct Sub-models	July 2020	January 2021
Phase III	Construct CDA model	September 2020	January 2021
Phase IV	Final Review and Acceptance	December 2020	June 2021

Phase 1: Aprio to provide project management support through project.

Phase 2 through 4: Timeline adjusted to accommodate change of final delivery to 2021 due to COVID-19 (e.g. furloughs and business interruptions) as well as for additional time to understand and observe the impact of the pandemic on the global economy. November 30, 2020 was indicated as part of original project plan.

## Appendix B

### Definitions Used in the AB 729 Plan <sup>3</sup>

For purposes of CARE’s determination of differential assessments as required under California AB 729 (“AB 729”), CARE applied definitions to those terms specifically defined within the statute. The list below provides the definitions included within the AB 729 statute, with some revisions to ensure uniformity of terminology. Any revisions are indicated with an **[New]** and any additional wording is indicated in green.

**Brand:** means a name, symbol, word, or mark that identifies the carpet, rather than its components, and attributes the carpet to the owner or licensee of the brand as the manufacturer.

**Carpet America Recovery Effort (CARE):** means the Carpet America Recovery Effort, a third-party nonprofit carpet stewardship organization incorporated as a nonprofit corporation pursuant to Section 501(c)(3) of Title 26 of the United States Code in 2002 and established to increase the reclamation and stewardship of postconsumer carpet.

**CARE MOU:** means the 2012 Memorandum of Understanding for Carpet Stewardship, as to be negotiated among the carpet industry, states, and nongovernmental organization stakeholders as a successor to the 2002 memorandum of understanding. [Note: This reference is included as it was part of the original AB 2398 legislation. However, it is no longer relevant.]

**Carpet:** means a manufactured article that is used in commercial or residential buildings affixed or placed on the floor or building walking surface as a decorative or functional building interior feature and that is primarily constructed of a top visible surface of synthetic or natural face fibers or yarns, or tufts attached to a backing system derived from synthetic or natural materials.

(1) “Carpet” includes, but is not limited to, a commercial or a residential broadloom carpet or modular carpet tiles.

(2) “Carpet” does not include a rug, pad, cushion, or underlayment used in conjunction with, or separately from, a carpet.

Carpet stewardship organization or organization: means either of the following:

(1) An organization exempt from taxation under Section 501(c)(3) of the Internal Revenue Code of 1986 (26 U.S.C. 501(c)(3)) that is appointed by one or more manufacturers to act as an agent on behalf of the manufacturer to design, submit, and administer a carpet stewardship plan pursuant to this chapter.

(2) A carpet manufacturer that complies with this chapter as an individual manufacturer.

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<sup>3</sup> California Assembly Bill No. 729: Chapter 680

**Carpet stewardship plan or plan:** means a plan written by an individual manufacturer or a carpet stewardship organization, on behalf of one or more manufacturers, that includes all of the information required by Section 42972.

**Consumer:** means a purchaser, owner, or lessee of carpet, including a person, business, corporation, limited partnership, nonprofit organization, or governmental entity.

**Department:** means the Department of Resources Recycling and Recovery.

**Label:** means a graphic representation of three chasing arrows with a carpet roll inside the arrows, or an alternative design, designed by CARE, after consultation with retailers and wholesalers, and approved by the department for use on all invoices or functionally equivalent billing documents pursuant to paragraph (3) of subdivision (c) of Section 42972.

Carpet **Manufacturer (Mill) [New]:** means, with regard to a carpet that is sold, offered for sale, or distributed in the state, any of the following:

(1) The person who manufactures the carpet and who sells, offers for sale, or distributes that carpet in the state under that person's own name or brand.

(2) If there is no person who sells, offers for sale, or distributes the carpet in the state under the person's own name or brand, the manufacturer of the carpet is the owner or licensee of a trademark or brand under which the carpet is sold or distributed in the state, whether or not the trademark is registered.

(3) If there is no person who is a manufacturer of the carpet for the purpose of paragraphs (1) and (2), the manufacturer of that carpet is the person who imports the carpet into the state for sale or distribution.

**Postconsumer carpet [New]:** means carpet that is no longer used for its manufactured purpose. Also referred to as *discards*.

**Processor [New]:** means a company that uses a process, including, but not limited to, shredding, grinding, sheering, or depolymerization, to convert discarded whole carpet into finished recycled output that is ready to be utilized as an input material for manufacturing products. See also definition of "Processor" as included within CARE's 2018-22 Plan.

**Recycling:** means the process, consistent with Section 40180, of converting postconsumer carpet into a useful product that meets the quality standards necessary to be used in the marketplace.

**Retailer:** means a person who offers new carpet in a retail sale, as defined in Section 6007 of the Revenue and Taxation Code, including a retail sale through any means, including remote offerings such as sales outlets, catalogs, or an internet website or other similar electronic means.

**Sell or sales:** means a transfer of title of a carpet for consideration, including a remote sale conducted through a sales outlet, catalog, or internet.

## Appendix C

Definitions used in California Carpet Stewardship Plan 2018-2022 (Hereafter “CARE’s 2018-22 Plan”)

For terms not defined within the AB 729 statute, CARE next applied the definitions as specified within CARE’s 2018-22 Plan. The list below provides the definitions included within the CARE’s 2018-22 Plan with some revisions to ensure uniformity of terminology. Any revisions are indicated with an **[New]** and any additional wording is indicated in green.

**AUP (Agreed Upon Procedures):** A prescribed procedure executed by an external accounting firm or contractor to examine the records of Program participants to verify compliance and prevent fraud.

**Carpet as Alternative Fuel (CAAF):** Fuel that has been produced from source-separated and sorted post-consumer carpet and processed, including 1) extraction of components for recycling if at all possible and 2) size reduction, shredding, and/or blending with coal fines, etc. *CAAF* is not a type of recycling or reduction in disposal for purposes of this Program. *CAAF* is an alternative fuel source to other fuel sources such as coal, natural gas, and fuel oil.

**Carpet-Derived Aggregate (CDA):** A potential utilization of recycled output as an alternative to heavy rock and soil for use in geotextiles, road construction, or similar civil engineering application; similar to *Tire-Derived Aggregate (TDA)*. Examples might include lightweight wall backfill, vibration attenuation, embankment repair, etc.

**Carpet Industry:** The universe of participants involved in the production of carpet, including Carpet Mills, fiber manufacturers, material suppliers, etc. It includes but is not limited to members of the Carpet and Rug Institute (CRI).

**Carpet Mill [New]:** A primary producer of carpet, carpet tiles, or related products covered under the Plan; also referred to as a *Carpet Manufacturer per AB 729*.

**Cement Kiln:** Cement production facility that may use CAAF as a source of energy and/or as an additive for cement production.

**Collected:** Gross collected pounds of California PCC collected (total includes material that may eventually be sent to landfill). Also referred to as *Gross Collected*.

**Collection:** Any method of consolidating and temporarily storing recovered commercial and/or residential carpet.

**Collector/Sorter (CSE):** A business that provides carpet recycling collection services for retailers, disposal sites or other sites. *Collector/sorters* sort received PCC by material type for third-party reuse, or wholesale to Tier 1 processors for recycling. *Collector/sorters* do not convert material into recycled output. CSE refers to a collector/sorter entrepreneur.

**Demolition:** Represents the teardown of a building (one-time carpet removal). There is no estimate of percentage of flooring covered by carpet.

**Discards:** Carpet that has completed its lifecycle as a consumer item or is no longer used for its manufactured purpose. Also referred to as *post-consumer carpet materials*.

**Disposal:** The management of solid waste through landfill disposal, transformation, or engineered municipal solid waste (EMSW) conversion, at a permitted solid waste facility (per PRC 40192). Under this Plan total pounds of post-consumer carpet sent to landfill, CAAF, kiln, WTE, and incineration are counted as disposal.

**Diversions:** “Diversions” or “divert” means activities which reduce or eliminate the amount of solid waste disposed at landfills in a manner consistent with the state's hierarchy for waste management pursuant to Section 40051. (Ref: 14 CCR §18941)

**Education/Communication Costs :** Refers to expenses incurred in support of *Marketing, Education and Outreach (ME&O)* efforts conducted under the Plan. Includes the cost of market development professional services, research and promotion, on-the-ground education and outreach support, communications, market research, collateral and materials development, and related expenses.

**End-of-life (EOL) Costs:** Program cost associated with the management of carpet discards from the point when a product is discarded by the consumer or the end of the useful life of the product, whichever occurs first. Costs may include subsidies, incentives or other expenditures related to reuse, recycling, incineration for energy recovery, landfilling, and other forms of carpet disposition in line with Program goals. It also includes storage and transportation for the rural county program.

**Entrepreneur:** For the purposes of this report, an individual or privately held company that actively, collects, sorts, processes, or manufactures products made from *post-consumer carpet materials*. It does not refer to a carpet manufacturer.

**Governance Costs [New]:** Includes costs charged by CalRecycle for regulatory oversight of the Program. Effective under AB 729, the cap on administrative fees paid to CalRecycle to not exceed 5% of the aggregate assessments collected for the proceeding calendar year has been removed.<sup>4</sup>

**Gross Collection (GC):** Estimated pounds of PCC removed from waste stream for reuse, recycle, CAAF, kiln, or WTE, as reported to CARE by Collector/Sorters, prior to processing. This also includes unrecyclable PCC or carpet processing waste that may eventually be sent to landfill. The terms *Recovered* and *Collected* were previously used to describe *Gross Collected*.

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<sup>4</sup> California Assembly Bill No. 729: Chapter 680: SEC.6. Section 42977

**Gross Collection Conversion Rate:** The ratio of gross collections converted into *recycled output (RO)*, expressed as a percentage of gross collections; also referred to as *Yield*.

**Implementation Costs:** Includes total expenses associated with Program implementation, as the sum of EOL subsidies (incentives) costs and administration costs.

**Input:** The post-consumer carpet that is collected, sorted, and readied for processing.

**Landfilling:** Landfilling includes the placement of post-consumer carpet and/or the residuals from a post-consumer carpet management method into a landfill disposal facility.

**Manufacturer:** A manufacturer of secondary products made with post-consumer carpet content. Manufacturers receive finished (Type 1) recycled output from processors and utilize this material in the production of finished secondary products. At this time, manufacturers are only eligible for subsidy payments if they use non-nylon Type 1 output. CARE reserves the option to extend the manufacturer subsidy system to nylon-based Type 1 output if market dynamics justify. In this report, secondary manufacturers are referred to as manufacturers.

**Marketing, Education & Outreach (ME&O):** Communications, education, and/or outreach activities related to Program promotion, technical assistance, or stakeholder support to increase Program adoption, impact, and/or effectiveness.

**Net Diversion:** Estimated total PCC removed from California landfills for reuse, recycle, CAAF, kiln, WTE, or export. It is calculated as the difference of gross collected pounds minus PCC and process waste pounds that ultimately goes to landfill from processors or collectors.

**Post-Industrial/Pre-Consumer Carpet Material:** Carpet materials generated in manufacturing and conversion processes, including, but not limited to, manufacturing scrap and trimmings/cuttings.

**Processing:** Preparing carpet material for reuse, recycling, CAAF, WTE, or disposal.

**Processor:** Qualified recipient participating under the Plan that uses industry-recognized processes such as shredding, grinding, shearing, depolymerization, etc., to convert discarded whole carpet into finished (Type 1 or Type 2) recycled output, ready to be utilized as an input material for secondary products. In this report, processors are referred to as Tier 1 processors. Some processors may also function as collector/sorter entrepreneurs or manufacturers.

**Program Administrative Costs:** Includes all non-subsidy Program expenses, including accounting, legal services, CARE facilities and operational expenses, staffing/contractor expenses, professional services, and marketing, education, and outreach activities.

Program administration also includes service payments (governance costs) to CalRecycle for Program oversight.

**Recovered:** Gross collected pounds of California PCC collected (this includes unrecyclable PCC carpet or carpet processing waste that may eventually be sent to landfill). Also referred to as *Gross Collection*.

**Recycled Content:** Also known as *recovered* material content, it is the percentage of material, by weight, a product is made from that has been recovered from consumers in the municipal solid waste stream (post-consumer recycled content), plus any industrial materials salvaged for reuse (pre-consumer/post-industrial content).

- **Post-Consumer Recycled Carpet Content (PCRCC):** The amount or percent of carpet, by weight, that is no longer used for or has served its manufactured purpose, that is incorporated into the manufacturing process of the same or a different product.
- **Post-Industrial/Pre-Consumer Recycled Carpet Content:** The amount or percent of carpet material, by weight, generated by manufacturers or product converters, such as trimming, overruns, and products returned to the *Carpet Mills* that are incorporated back into the manufacturing process of the same or a different product.

**Recycled Output (RO):** The sum of reuse or the material that results from the industry-recognized processing (shredding, shearing, hammer-milling, depolymerization, etc.) of PCC from a processor. Examples of output include fiber, shredded carpet tile, depolymerized chemical components, carpet filler, PC4, etc. The Program currently distinguishes between two types of material:

- **Type 1 Recycled Output Material:** Higher value recycled output that with the most benefits to manufacturers of finished products and which generally takes more processing to achieve. Type 1 recycling materials must meet requirements set by the CARE SFOC. This includes maximum allowable ash content requirements, which are presently set at 25% or less and verified with quarterly ash testing in line with CARE-approved testing protocols. Examples of Type 1 recycling materials include PCC fiber, PCC backing, engineered resins, and material for carpet cushion.
- **Type 2 Recycled Output Material:** Lower-valued recycled output with generally lower benefit to manufacturers of finished products and a lower value than Type 1 recycling materials. Type 2 recycling materials exceed 25% ash content in line with CARE-approved testing protocols. Examples of Type 2 recycling materials include carpet filler and non-functional filler.

**Recycling Rate:** The proportion of carpet discards converted into recycled output, expressed as a percentage of carpet discards. The Program's recycling rate goal is 16% by 2016 and 24% by 2020.

**Reported Diversion:** The sum of reported PCC removed from California landfills. It is calculated as the sum of reported pounds of reuse + recycled output (Type 1 + Type 2) + CAAF + Kiln + Carcass + Cushion + Export + WTE.

**Reuse:** The donation or sale of recovered carpet back into the market for its original intended use. The reuse of recovered carpet retains the original purpose and performance characteristics of the carpet.

**SFOC:** Sustainable Fund Oversight Committee of CARE.

**Sorting:** The method used for segregating collected carpet into the various backing types (e.g., PVC, SBR latex) and/or fiber types (e.g., nylon 6, nylon 66, polypropylene, polyester).

**Source Reduction:** The result of using less product or material in manufacturing and use of carpet, and/or reducing the amount of discarded carpet generated. For the purposes of this plan, source reduction specifically refers to the reduction of PCC ultimately sent to landfill.

**Source Separation:** The process by which carpet is separated/segregated from all other materials at the end of its useful life (or when discarded).

**SPC:** Stewardship Planning Committee of CARE.

**Tier:** Distinguishes end market uses of PCC Recycled goods. Where the term *Type* distinguishes between the level of processing of PCC, *Tier* is used to differentiate the end product applications that may or may not need incentives to facilitate their adoptions. Examples of Tier 2 finished products from Type 1 PCC fibers: depoly, fiber pad, home insulation batting, plastic lumber, engineered pellet, and non-woven filtration waddles.

**Yield:** The ratio of gross collections converted into recycled output, expressed as a percentage of gross collections; also referred to as gross collection conversion rate.