

APPENDICES A-G

The Current State of Processing Report A Plastic Pollution Prevention and Packaging Producer Responsibility Act Needs Assessment Report

February 2026

Data and information used in this report provided as part of contract number DRR24043.

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Appendix A: Method

A-1. Request for Information and Data Sources

The contractor used publicly available information to inform the survey and subsequent analysis. CalRecycle collects valuable information from interested parties, and the contractor reviewed those data to avoid duplicating efforts during outreach. The following CalRecycle data sources were considered in this study:

- Recycling and Disposal Reporting System (RDRS): An electronic data system where businesses, facilities, and operations submit information related to recycling and disposal quarterly. It includes information from disposal facilities, transfer facilities, MRFs, OPFs, brokers, and haulers.
- Solid Waste Information System (SWIS): A database that contains information about solid waste facilities, operations, and disposal sites throughout California. The types of solid waste activities in this database include landfills, transfer stations, composting sites, in-vessel digestion sites, engineered municipal solid waste conversion facilities, transformation facilities, and closed disposal sites. For each site, the database contains information about the location, landowner, operator, activity type, regulatory and operational status, authorized waste types, local enforcement agency, inspections, and enforcement action records.
- [SB 343 \(Allen, 2021\) Material Characterization Study Final Findings Report \(SB 343 Report\)](#): In 2024, CalRecycle completed a statewide material characterization study of material types and forms collected and sorted by large volume transfer and processors for recycling.
- SB 1383 Infrastructure and Market Analysis (prepared by Integrated Waste Management Consulting, LLC. for CalRecycle): A statewide survey of compost and anaerobic digestion facility capacity. The SB 1383 Infrastructure and Market Analysis report provides a comprehensive evaluation of California's organics processing infrastructure in relation to the requirements of SB 1383. It also compiles an inventory of existing composting and in-vessel digestion facilities, including their permitted and operational capacities and an assessment of current and projected processing needs, a classification of facility types, and an analysis of geographic distribution. The report examines key barriers to infrastructure development, such as permitting challenges, feedstock contamination, inconsistent supply, and market risks. Finally, it presents policy and investment considerations to support infrastructure expansion and includes appendices with detailed facility data, maps, and supporting documentation.
- AB 1201 (Ting, 2021) Bifurcated Collection Determination (prepared by CalRecycle): CalRecycle released a discussion paper to inform the November 1, 2023, workshop and gather input on the feasibility of separately collecting products that are not allowable compost feedstocks under the USDA NOP regulations from those that are allowable compost feedstocks under the NOP, as required by AB 1201. Survey results indicated that most composting facilities did

not have the infrastructure to support separate streams, treated plastic and plastic-lined products as contamination, and cited significant cost, operational, and certification challenges associated with implementing a bifurcated collection system. The AB 1201 Bifurcated Collection Determination discussion paper addresses facility practices related to plastic and plastic-lined products and outlines the reported cost, logistical, and certification challenges associated with adopting a dual stream collection approach.

- SB 1335 (Allen, 2018) Composter Survey (prepared by CalRecycle): State owned and operated properties, including concessionaires on state-owned property and businesses under contract to provide food service to a state agency, are required to use food service packaging that meets specific reusability, recyclability, or compostability criteria. The survey sent to composters across California as part of the SB 1335 initiative aimed to gather detailed insights into the current operations, capacities, and challenges faced by OPFs to better understand the state's composting infrastructure and identify gaps in capacity, contamination issues, and opportunities for growth and effective implementation of SB 1335 requirements.

A-2. Data Confidentiality

The contractor was committed to data confidentiality because some information requested for this study was considered proprietary or confidential business information. The contractor used the following measures to protect confidentiality and promote trust in the data collection process:

- Nondisclosure agreements.
- Confidentiality agreements.
- Data collected for the project was aggregated prior to being consolidated into this report. Data are not reported for individual facilities to protect confidentiality of participants.

A-3. Data Stratification and Modeling

Data presented in this report were aggregated and analyzed by region. The regions are Bay Area, Coastal, Mountain, Southern, and Valley, as defined in CalRecycle's SB 343 Report.

CalRecycle describes each region as follows:

- Bay Area: Counties which are more metropolitan with a strong industrial component in the economy. This includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma County.
- Coastal: Counties on or near the coast that are not in either the Bay Area or Southern region. This includes Del Norte, Humboldt, Lake, Mendocino, Monterey, San Benito, San Luis Obispo, Santa Barbara, and Santa Cruz County.

The Coastal region is more populated than the rural Mountain region and has a large agricultural component, similar to the central Valley region.

- Mountain: Counties that are primarily rural, with strong agricultural economies, low population density, and a low industrial base. This includes Alpine, Amador, Calaveras, El Dorado, Inyo, Lassen, Mariposa, Modoc, Mono, Nevada, Plumas, Sierra, Siskiyou, Trinity, and Tuolumne County.
- Southern: Counties that are strongly industrial with large populations and some agricultural influences. This includes Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura County.
- Valley: Counties between the Sierra Nevada Mountains and the Coast Range with a major agricultural base, important population centers, and some manufacturing. This includes Butte, Colusa, Fresno, Glenn, Kern, Kings, Madera, Merced, Placer, Sacramento, San Joaquin, Shasta, Stanislaus, Sutter, Tehama, Tulare, Yolo, Yuba County.

The full list of counties included in each region, as well as the descriptions, can be found on CalRecycle’s website:
www2.calrecycle.ca.gov/WasteCharacterization/Regions.

Table A-1 shows the total population and percentage of total population of each region, using the DOF E-5 Report. The contractor prioritized meaningful engagement across these regions to understand the diverse facility types and recycling trends in California.

Table A-1: Population of Each Region (2024)

Metric	Bay Area	Coastal	Mountain	Southern	Valley	Statewide
Population	7,656,691	1,813,274	597,801	22,100,945	7,360,390	39,529,101
Percentage of State Population	19.4%	4.6%	1.5%	55.9%	18.6%	100%

This study analyzes material covered under the Act, which includes single-use packaging and single-use plastic food service ware (covered material). CalRecycle published a list of covered material categories (CMCs) that categorizes covered material by material class, type, and form. The contractor used the December 31, 2024, CMC List that CalRecycle published to create 54 CMC processing groups to conduct the analyses of this study. The CMC processing groups were created because processing facilities do not manage and categorize materials in terms of the detailed CMC list, which includes 94 categories. Table A-2 presents the CMC processing groups that are more relevant to processors and the CMC in each group.

Table A-2: CMCs Within Each CMC Processing Group

Category ID Mode	Material Class	Material Type	CMC Form	CMC Processing Group
24_G1N	Glass	Glass	Bottles and Jars w/o plastic component	Mixed Glass Bottles and Jars – Non-CRV
24_G1P	Glass	Glass	Bottle and Jars w/ plastic component	Mixed Glass Bottles and Jars – Non-CRV
24_G2N	Glass	Glass	Other Forms w/o plastic component	Other Forms of Glass
24_G2P	Glass	Glass	Other Forms w/ plastic component	Other Forms of Glass
24_G3N	Glass	Glass	Small – Two or more sides measuring two inches or less w/o plastic component	Small Format – Glass
24_G3P	Glass	Glass	Small – Two or more sides measuring two inches or less w/ plastic component	Small Format – Glass
24_C1N	Ceramic	Ceramic	All Forms w/o plastic component	Ceramic
24_C1P	Ceramic	Ceramic	All Forms w/ plastic component	Ceramic
24_C2N	Ceramic	Ceramic	Small – Two or more sides measuring two inches or less w/o plastic component	Small Format – Ceramic
24_C2P	Ceramic	Ceramic	Small – Two or more sides measuring two inches or less w/ plastic component	Small Format – Ceramic
24_M1N	Metal	Aluminum	Non-aerosol container w/o plastic component	Aluminum Containers – Non-CRV
24_M1P	Metal	Aluminum	Non-aerosol container w/ plastic component	Aluminum Containers – Non-CRV
24_M2N	Metal	Aluminum	Foil sheets w/o a plastic component	Other Aluminum
24_M2P	Metal	Aluminum	Foil sheets w/ a plastic component	Other Aluminum

Category ID Mode	Material Class	Material Type	CMC Form	CMC Processing Group
24_G1N	Glass	Glass	Bottles and Jars w/o plastic component	Mixed Glass Bottles and Jars – Non-CRV
24_M3N	Metal	Aluminum	Foil Molded Containers w/o plastic component	Other Aluminum
24_M3P	Metal	Aluminum	Foil Molded Containers w/ plastic component	Other Aluminum
24_M5N	Metal	Aluminum	Other Forms w/o plastic component	Other Aluminum
24_M5P	Metal	Aluminum	Other Forms w/ plastic component	Other Aluminum
24_M4P	Metal	Aluminum	Aerosol can w/ plastic component	Aluminum Containers – Non-CRV
24_M9N	Metal	Other Nonferrous	All Forms w/o plastic component	Other Nonferrous
24_M9P	Metal	Other Nonferrous	All Forms w/ plastic component	Other Nonferrous
24_M6N	Metal	Tin/Steel/Bimetal	Non-aerosol container w/o plastic component	Tin/Steel/Bimetal – Non-CRV
24_M6P	Metal	Tin/Steel/Bimetal	Non-aerosol container w/ plastic component	Tin/Steel/Bimetal – Non-CRV
24_M7P	Metal	Tin/Steel/Bimetal	Aerosol can w/ plastic component	Tin/Steel/Bimetal – Non-CRV
24_M8N	Metal	Tin/Steel/Bimetal	Other Forms w/o plastic component	Tin/Steel/Bimetal – Non-CRV
24_M8P	Metal	Tin/Steel/Bimetal	Other Forms w/ plastic component	Tin/Steel/Bimetal – Non-CRV
24_M10N	Metal	Other Ferrous	All Forms w/o plastic component	Other Ferrous
24_M10P	Metal	Other Ferrous	All Forms w/ plastic component	Other Ferrous
24_M12N	Metal	Metal	Small – Two or more sides measuring two inches or less w/o plastic component	Small Format – Metal
24_M12P	Metal	Metal	Small – Two or more sides measuring two inches or less w/ plastic component	Small Format – Metal

Category ID Mode	Material Class	Material Type	CMC Form	CMC Processing Group
24_G1N	Glass	Glass	Bottles and Jars w/o plastic component	Mixed Glass Bottles and Jars – Non-CRV
24_Pf1N	Paper and Fiber	Kraft Paper	All Forms w/o plastic component	Kraft Paper
24_Pf1P	Paper and Fiber	Kraft Paper	All Forms w/ plastic component	Kraft Paper
24_Pf15P	Paper and Fiber	Multi-Material Laminate	Aseptic Cartons	Aseptic Cartons
24_Pf5P	Paper and Fiber	Multi-Material Laminate	Gable-top Cartons	Gable-Top Cartons
24_Pf10N	Paper and Fiber	Paperboard	All Forms w/o plastic component	Paperboard
24_Pf10P	Paper and Fiber	Paperboard	All Forms w/ plastic component	Paperboard
24_Pf7P	Paper and Fiber	Multi-Material Laminate	Other Forms w/ plastic component	Other Lined Paper
24_Pf9N	Paper and Fiber	OCC	Cardboard w/o plastic component	OCC
24_Pf9P	Paper and Fiber	OCC	Cardboard w/ plastic component	OCC
24_Pf8N	Paper and Fiber	OCC	Waxed Cardboard w/o plastic component	Waxed OCC
24_Pf8P	Paper and Fiber	OCC	Waxed Cardboard w/ plastic component	Waxed OCC
24_Pf11N	Paper and Fiber	White Paper	All Forms w/o plastic component	Mixed Papers

Category ID Mode	Material Class	Material Type	CMC Form	CMC Processing Group
24_G1N	Glass	Glass	Bottles and Jars w/o plastic component	Mixed Glass Bottles and Jars – Non-CRV
24_PF14P	Paper and Fiber	Molded Fiber	All Forms w/ plastic component	Molded Pulp
24_PF14N	Paper and Fiber	Molded Fiber	All Forms w/o plastic component	Molded Pulp
24_PF12N	Paper and Fiber	Other/Mixed Paper	All Forms w/o plastic component	Mixed Papers
24_PF12P	Paper and Fiber	Other/Mixed Paper	All Forms w/ plastic component	Mixed Papers
24_PF11P	Paper and Fiber	White Paper	All Forms w/ plastic component	Mixed Papers
24_PF16N	Paper and Fiber	Paper and Fiber	Small – Two or more sides measuring two inches or less w/o plastic component	Small Format – Paper
24_PF16P	Paper and Fiber	Paper and Fiber	Small – Two or more sides measuring two inches or less w/ plastic component	Small Format – Paper
24_P1P	Plastic	PET (#1)	Bottles, Jugs, and Jars (Clear/Natural)	Plastic #1 – PET Clear Bottles, Jugs, Jars – Non CRV
24_P2P	Plastic	PET (#1)	Bottles, Jugs, and Jars (Pigmented/Color)	Plastic #1 – PET Pigmented Bottles, Jugs, Jars – Non CRV
24_P38P	Plastic	PET (#1)	Other Rigid Containers, Cups, Lids, Plates, Trays, Tubs	Plastic #1 – Other PET Rigid
24_P39P	Plastic	PET (#1)	Other Rigid Items	Plastic #1 – Other PET Rigid

Category ID Mode	Material Class	Material Type	CMC Form	CMC Processing Group
24_G1N	Glass	Glass	Bottles and Jars w/o plastic component	Mixed Glass Bottles and Jars – Non-CRV
24_P5P	Plastic	PET (#1)	Flexible and Film Items	Plastic #1 – PET Flexibles and Films
24_P6P	Plastic	HDPE (#2)	Bottles, Jugs and Jars (Clear/Natural)	Plastic #2 – HDPE (pigmented and natural) Bottles, Jugs, Jars – Non-CRV
24_P7P	Plastic	HDPE (#2)	Bottles, Jugs and Jars (Pigmented/Color)	Plastic #2 – HDPE (pigmented and natural) Bottles, Jugs, Jars – Non-CRV
24_P8P	Plastic	HDPE (#2)	Pails & Buckets	Plastic #2 - HDPE Pails and Buckets
24_P40P	Plastic	HDPE (#2)	Other Rigid Items	Plastic #2 – Other HDPE Rigid
24_P10P	Plastic	HDPE (#2)	Flexible and Film Items	Plastic #2 – HDPE Flexibles and Films
24_P11P	Plastic	PVC (#3)	Rigid Items	Plastic #3 – PVC Rigid
24_P12P	Plastic	PVC (#3)	Flexible and Film Items	Plastic #3 – PVC Flexibles and Films
24_P13P	Plastic	LDPE (#4)	Bottles, Jugs and Jars	Plastic #4 – LDPE Bottles and Jugs
24_P14P	Plastic	LDPE (#4)	Other Rigid Items	Plastic #4 – Other LDPE Rigid
24_P15P	Plastic	LDPE (#4)	Clear Non-Bag Film	Plastic #4 – Mono LDPE Flexibles and Films
24_P16P	Plastic	LDPE (#4)	Other Flexible and Film Items	Plastic #4 – Mono LDPE Flexibles and Films
24_P17P	Plastic	PP (#5)	Bottles, Jugs and Jars	Plastic #5 – PP Rigid Items

Category ID Mode	Material Class	Material Type	CMC Form	CMC Processing Group
24_G1N	Glass	Glass	Bottles and Jars w/o plastic component	Mixed Glass Bottles and Jars – Non-CRV
24_P41P	Plastic	PP (#5)	Other Rigid Containers, Cups, Lids, Plates, Trays, Tubs	Plastic #5 – PP Rigid Items
24_P19P	Plastic	PP (#5)	Utensils	Plastic #5 – Other PP
24_P20P	Plastic	PP (#5)	Other Rigid Items	Plastic #5 – PP Rigid Items
24_P21P	Plastic	PP (#5)	Clear Non-Bag Film	Plastic #5 – Mono PP Flexibles and Films
24_P22P	Plastic	PP (#5)	Other Flexible and Film Items	Plastic #5 – Mono PP Flexibles and Films
24_P23P	Plastic	PS (#6)	Expanded/Foamed Hinged Containers, Plates, Cups, Tubs, Trays, and Other Foamed Containers	Plastic #6 – EPS Rigid Items
24_P42P	Plastic	PS (#6)	Other Expanded/Foamed Forms	Plastic #6 – EPS Rigid Items
24_P27P	Plastic	PS (#6)	Utensils	Plastic #6 – Other PS
24_P43P	Plastic	PS (#6)	Solid Hinged Containers, Plates, Cups, Tubs, Trays, and Other Solid Forms	Plastic #6 – PS Rigid Items
24_P29P	Plastic	PS (#6)	Flexible and Film Items	Plastic #6 – PS Flexibles and Films
24_P44P	Plastic	Plastics and Polymers Designed for Compostability	Rigid Items	Plastics and Polymers Designed for Compostability – Rigid Items
24_P45P	Plastic	Plastics and Polymers Designed for Compostability	Flexible and Film Items	Plastics and Polymers Designed for Compostability – Flexibles and Films
24_P46P	Plastic	Multi-Material Laminate	Pouches and Envelopes	Multi-Material Laminate

Category ID Mode	Material Class	Material Type	CMC Form	CMC Processing Group
24_G1N	Glass	Glass	Bottles and Jars w/o plastic component	Mixed Glass Bottles and Jars – Non-CRV
24_P33P	Plastic	Multi-Material Laminate	Other Forms	Multi-Material Laminate
24_P34P	Plastic	Other/Mixed Plastics	Textiles	Plastic-based Textiles
24_P35P	Plastic	Other/Mixed Plastics	Rigid Items	Plastic #7 – Other Rigid Plastics
24_P36P	Plastic	Other/Mixed Plastics	Flexible and Film Items	Plastic #7 – Other Flexible and Films
24_P47P	Plastic	Plastic	Small – Two or more sides measuring two inches or less	Small Format – Plastics
24_WO1N	Wood and Other Organic Materials	Wood	All Untreated Forms w/o plastic component	Wood – Untreated
24_WO1P	Wood and Other Organic Materials	Wood	All Untreated Forms w/ plastic component	Wood – Untreated
24_WO2N	Wood and Other Organic Materials	Wood	All Treated or Painted Forms w/o plastic component	Wood – Treated
24_WO2P	Wood and Other Organic Materials	Wood	All Treated or Painted Forms w/ plastic component	Wood – Treated
24_WO3N	Wood and Other Organic Materials	Other/Mixed Organic	Textiles w/o plastic component	All Other Textiles

Category ID Mode	Material Class	Material Type	CMC Form	CMC Processing Group
24_G1N	Glass	Glass	Bottles and Jars w/o plastic component	Mixed Glass Bottles and Jars – Non-CRV
24_WO3P	Wood and Other Organic Materials	Other/Mixed Organic	Textiles w/ plastic component	All Other Textiles
24_WO4N	Wood and Other Organic Materials	Other/Mixed Organic	Other Forms w/o plastic component	All Other Wood and Organics
24_WO4P	Wood and Other Organic Materials	Other/Mixed Organic	Other Forms w/ plastic component	All Other Wood and Organics
24_WO6N	Wood and Other Organic Materials	Wood and Other Organic Materials	Small – Two or more sides measuring two inches or less w/o plastic component	Small Format – Wood and Organics
24_WO6P	Wood and Other Organic Materials	Wood and Other Organic Materials	Small – Two or more sides measuring 2” or less w/ plastic component	Small Format – Wood and Organics

A-3.1 Recycling Processing Facility Tonnage Data Modeling

A-3.1.1 Inbound Material

The contractor evaluated inbound materials by CMC processing groups by referencing Appendix C Tables C-2 and C-4 from the Current State of Collection Report, which present the composition profile of recyclables and solid waste for residential and commercial generators on a combined basis. Projections were based on best available data, subject to assumptions and limitations further described in Appendix A, Sections 3.1 and 6.1, respectively. Tons collected by CMC collection group were further disaggregated for this report in Appendix C, Table C-3.

The contractor also estimated total inbound tonnage of single stream, dual stream, and mixed waste streams processed at recycling processing facilities and collected information about the permitted capacity, which was further refined to estimate

operational tons, or total inbound tons, processed in a typical year for all inbound material (see Appendix C, Table C-2). The total tons of single stream, dual stream, or mixed waste materials processed annually is also referred to as annual throughput. The contractor collected data on annual throughput from surveys, interviews, site visits, and secondary research. For facilities where annual throughput was not provided or unavailable through public resources, RDRS data were used to fill in data gaps. The following detailed data sources were used to estimate annual throughput tons:

- Annual throughput tonnages of dual stream, single stream, and mixed waste inbound reported to the contractor via surveys, interviews, and site visits in 2024.
- Expected annual or daily tons of dual stream, single stream, and mixed waste as presented in available permitting documentation. For facilities where only daily operational tons were available, annual tons were multiplied by an estimated 260 operating days per year (representing an average of five operating days per week).
- Inbound tonnages of material categorized as recycling reported via RDRS for the first two quarters of 2025. Semiannual figures were extrapolated on an annual basis to provide the typical annual operational tons processed. For facilities where daily operating tons were reported via permitting documentation or secondary research, these reported 2025 inbound tons serve as confirmation of the estimated operational tons.
- For facilities that did not have any information from the preceding data sources, 2024 outbound tonnages reported via RDRS were combined with estimated contamination rates reported by the facility to calculate the annual throughput.

A-3.1.2 Outbound Material

The contractor determined the estimated tons sent to end markets from processing facilities by CMC processing group using a combination of RDRS data, survey data, internal contractor resources, and SB 343 Report material characterization data. The contractor used RDRS tonnage data as the baseline for this analysis and mapped the RDRS outbound material types by facility to the SB 343 Report outflow categories.

Table A-3 demonstrates the mapping between RDRS material data and SB 343 outflow categories.

Table A-3: RDRS to SB 343 Material Mapping (2024)

RDRS – Material Category	RDRS – Material Subcategory	RDRS – Material Type	SB 343 Outflow Mapping
Construction/ Demolition/Inert Debris	Pallets	Pallets	Wood – Untreated
Glass	Glass	Glass	Mixed Glass

RDRS – Material Category	RDRS – Material Subcategory	RDRS – Material Type	SB 343 Outflow Mapping
Construction/ Demolition/Inert Debris	Pallets	Pallets	Wood – Untreated
Glass	Glass Bottles and Containers	Brown/Amber	Glass – Brown/Amber
Glass	Glass Bottles and Containers	Clear/Flint	Glass – Clear/Flint
Glass	Glass Bottles and Containers	Glass Bottles and Containers	Mixed Glass
Glass	Glass Bottles and Containers	Green/Emerald	Glass – Green/Emerald
Glass	Glass Bottles and Containers	Other	Mixed Glass
Glass	Glass Cullet	Brown/Amber	Glass – Brown/Amber
Glass	Glass Cullet	Clear/Flint	Glass – Clear/Flint
Glass	Glass Cullet	Glass Cullet – Mixed Colors	Mixed Glass
Glass	Glass Cullet	Green/Emerald	Glass – Green/Emerald
Glass	Glass Cullet	Other	Mixed Glass
Glass	Mixed Glass	Mixed Glass	Mixed Glass
Metal	Aluminum	Aerosol Cans	Aluminum – Other
Metal	Aluminum	Beverage Cans	Aluminum – UBC
Metal	Aluminum	Containers and Lids	Aluminum – Other
Metal	Aluminum	Foil	Aluminum – Other
Metal	Aluminum	Mixed Aluminum	Mixed Metal – Non- Ferrous
Metal	Metal	Metal	Mixed Metal – Ferrous – Steel/Tin Cans
Metal	Mixed Metal	Mixed Metal	Mixed Metal – Ferrous – Steel/Tin Cans

RDRS – Material Category	RDRS – Material Subcategory	RDRS – Material Type	SB 343 Outflow Mapping
Construction/ Demolition/Inert Debris	Pallets	Pallets	Wood – Untreated
Metal	Other Ferrous Scrap	Other Ferrous Metal	Mixed Metal – Ferrous – Steel/Tin Cans
Metal	Other Nonferrous Metals	Other Nonferrous Metal	Mixed Metal – Non-Ferrous
Metal	Scrap Metal	Scrap Metal	Mixed Metal – Ferrous – Steel/Tin Cans
Metal	Scrap Metal	Ferrous Scrap	Mixed Metal – Ferrous – Steel/Tin Cans
Metal	Scrap Metal	Tin Scrap	Mixed Metal – Ferrous – Steel/Tin Cans
Metal	Scrap Metal	Mixed Nonferrous Scrap	Mixed Metal – Non-Ferrous
Metal	Scrap Metal	Scrap and/or Shredded Aluminum	Mixed Metal – Small
Metal	Tin/Steel/Bimetal Containers, Cans, and Foil	Beverage Cans	Mixed Metal – Ferrous – Steel/Tin Cans
Metal	Tin/Steel/Bimetal Containers, Cans, and Foil	Containers and Lids	Mixed Metal – Ferrous – Steel/Tin Cans
Metal	Tin/Steel/Bimetal Containers, Cans, and Foil	Foil Sheets, Foil Molded Containers, and/or other Foil Forms	Mixed Metal – Non-Ferrous
Metal	Tin/Steel/Bimetal Containers, Cans, and Foil	Tin/Steel	Mixed Metal – Ferrous – Steel/Tin Cans
Other	Other	Other Approved Material Type	ONP and Mixed Paper

RDRS – Material Category	RDRS – Material Subcategory	RDRS – Material Type	SB 343 Outflow Mapping
Construction/ Demolition/Inert Debris	Pallets	Pallets	Wood – Untreated
Paper	Layered Paper	Uncoated Corrugated Cardboard	OCC
Paper	Magazines and Catalogs	Magazines and/or Catalogs	ONP and Mixed Paper
Paper	Mixed Paper	Bale	ONP and Mixed Paper
Paper	Mixed Paper	Mixed Paper	ONP and Mixed Paper
Paper	Mixed Paper	Shredded	ONP and Mixed Paper
Paper	Newspaper	Newspaper	ONP and Mixed Paper
Paper	Other Miscellaneous Paper	Other	ONP and Mixed Paper
Paper	Other Miscellaneous Paper	Other Miscellaneous Paper	ONP and Mixed Paper
Paper	Other Miscellaneous Paper	Shredded	ONP and Mixed Paper
Paper	Other Office Paper	Other Office Paper	White Office Paper
Paper	Paper	Paper	ONP and Mixed Paper
Paper	Remainder/ Composite Paper	Other	Gabletop & Aseptic Carton
Paper	White Ledger	White Paper	White Office Paper
Plastic	#1–2	Bottles	PET Bottle & Container
Plastic	#1–5	#1–5	Mixed Rigid Plastic
Plastic	#1–6	#1–6	Mixed Rigid Plastic

RDRS – Material Category	RDRS – Material Subcategory	RDRS – Material Type	SB 343 Outflow Mapping
Construction/ Demolition/Inert Debris	Pallets	Pallets	Wood – Untreated
Plastic	#3–7	Bottles and All Other Rigid Plastics	Plastic #3–#7
Plastic	#3–7	Bottles and Small Rigid Plastics	Plastic #3–#7
Plastic	#3–7	Non-bottle Rigids	Plastic #3–#7
Plastic	#3–7	Bottles and Small Rigid Plastics	Plastic #3–#7
Plastic	High-Density Polyethylene (HDPE #2)	Bag, Film, Sheet, and/or other Flexible Items	Plastic Film
Plastic	High-Density Polyethylene (HDPE #2)	Bottles	HDPE Mixed Bottle & Container
Plastic	High-Density Polyethylene (HDPE #2)	Mixed HDPE (#2)	HDPE Mixed Bottle & Container
Plastic	High-Density Polyethylene (HDPE #2)	Non-bottle Rigids	HDPE Mixed Bottle & Container
Plastic	Low-Density Polyethylene (LDPE #4)	Bag, Film, and/or Sheet – Colored	Plastic Film
Plastic	Low-Density Polyethylene (LDPE #4)	Bag, Film, and/or Sheet – Natural	Plastic Film
Plastic	Low-Density Polyethylene (LDPE #4)	Mixed LDPE (#4)	Plastic #4 – Other LDPE Rigid
Plastic	Low-Density Polyethylene (LDPE #4)	Rigids	Plastic #4 – Other LDPE Rigid
Plastic	Mixed Plastic	Bottles	PET Bottle & Container
Plastic	Mixed Plastic	Bottles and All Rigid Plastic	Mixed Rigid Plastic

RDRS – Material Category	RDRS – Material Subcategory	RDRS – Material Type	SB 343 Outflow Mapping
Construction/ Demolition/Inert Debris	Pallets	Pallets	Wood – Untreated
Plastic	Mixed Plastic	Bottles and Small Rigid Plastics	Mixed Rigid Plastic
Plastic	Mixed Plastic	Film and Sheet – Clear PE	Plastic Film
Plastic	Mixed Plastic	Film and Sheet – Curbside	Plastic Film
Plastic	Mixed Plastic	Film and Sheet – Mixed Retail	Plastic Film
Plastic	Mixed Plastic	Mixed Plastic	Mixed Rigid Plastic
Plastic	Mixed Plastic	Rigids	Mixed Rigid Plastic
Plastic	Mixed Plastic	Rigids – Bulky	Mixed Rigid Plastic
Plastic	Mixed Plastic	Rigids – Clamshells	Mixed Rigid Plastic
Plastic	Mixed Plastic	Rigids – Tubs and Lids	Mixed Rigid Plastic
Plastic	Mixed Plastic	Rigids – Tubs and Lids with Bulky Rigid Plastic	Mixed Rigid Plastic
Plastic	Plastic	Plastic	Mixed Rigid Plastic
Plastic	Plastic #7	Other (#7)	Plastic #3–#7
Plastic	Polyethylene terephthalate (PET #1)	Bottles	PET Bottle
Plastic	Polyethylene terephthalate (PET #1)	Mixed PET (#1)	PET Bottle & Container
Plastic	Polypropylene (PP #5)	Bottles	Polypropylene #5
Plastic	Polypropylene (PP #5)	Mixed PP (#5)	Polypropylene #5
Plastic	Polypropylene (PP #5)	Rigids - All	Polypropylene #5

RDRS – Material Category	RDRS – Material Subcategory	RDRS – Material Type	SB 343 Outflow Mapping
Construction/ Demolition/Inert Debris	Pallets	Pallets	Wood – Untreated
Plastic	Polystyrene (PS #6)	Densified	Expanded Polystyrene #6
Plastic	Polystyrene (PS #6)	Mixed PS (#6)	Expanded Polystyrene #6

After outflows per facility were established, the contractor used CalRecycle’s mapping of the SB 343 material types and forms (MTF) to the CMCs established under the Act to estimate the tons of CMC processing groups prepared by MRFs to be sent to end markets.

Table A-4 combines the mapping of SB 343 MTF to the CMC with the contractor’s mapping of CMC-to-CMC processing groups (Table A-2), producing a translation of the SB 343 MTF to the CMC processing group. The SB 343 MTFs represent the detailed material types and forms identified within the outflows from MRFs. Any materials labeled “N/A” in Table A-4 are not considered a CMC processing group because they are assumed to include material not covered under the Act, such as CRV beverage containers.

Table A-4: SB 343 Material and Form Mapping to CMC Processing Group (2024)

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
Fines and Residuals	Ceramic	Ceramic	Small – Two or more sides measuring two inches or less w/o plastic component	Small Format – Ceramics
Fines and Residuals	Ceramic	Ceramic	Small – Two or more sides measuring two inches or less w/ plastic component	Small Format – Ceramics
Single-Use Ceramic Packaging	Ceramic	Ceramic	All Forms w/o plastic component	Ceramic

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
Single-Use Ceramic Packaging	Ceramic	Ceramic	All Forms w/ plastic component	Ceramic
Glass Beverage Containers – Brown/Amber – CRV	Glass	Glass	N/A	N/A (CRV)
Glass Beverage Containers – Clear/Flint – CRV	Glass	Glass	N/A	N/A (CRV)
Glass Beverage Containers – Green/Emerald – CRV	Glass	Glass	N/A	N/A (CRV)
Glass Beverage Containers – Other Colors – CRV	Glass	Glass	N/A	N/A (CRV)
Glass Containers – Brown/Amber – non-CRV	Glass	Glass	Bottles and Jars w/o plastic component	Mixed Glass Bottles and Jars – Non-CRV
Glass Containers – Brown/Amber – non-CRV	Glass	Glass	Bottle and Jars w/ plastic component	Mixed Glass Bottles and Jars – Non-CRV
Glass Containers – Clear/Flint – non-CRV	Glass	Glass	Bottles and Jars w/o plastic component	Mixed Glass Bottles and Jars – Non-CRV
Glass Containers – Clear/Flint – non-CRV	Glass	Glass	Bottle and Jars w/ plastic component	Mixed Glass Bottles and Jars – Non-CRV
Glass Containers – Green/Emerald – non-CRV	Glass	Glass	Bottles and Jars w/o plastic component	Mixed Glass Bottles and Jars – Non-CRV
Glass Containers – Green/Emerald – non-CRV	Glass	Glass	Bottle and Jars w/ plastic component	Mixed Glass Bottles and Jars – Non-CRV
Glass Containers – Other Colors – non-CRV	Glass	Glass	Bottles and Jars w/o plastic component	Mixed Glass Bottles and Jars – Non-CRV

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
Glass Containers – Other Colors – non-CRV	Glass	Glass	Bottle and Jars w/ plastic component	Mixed Glass Bottles and Jars – Non-CRV
Remainder/ Composite Glass	Glass	Glass	N/A	N/A
Fines and Residuals	Glass	Glass	Small – Two or more sides measuring two inches or less w/o plastic component	Small Format – Glass
Fines and Residuals	Glass	Glass	Small – Two or more sides measuring two inches or less w/ plastic component	Small Format – Glass
Aluminum Beverage Cans – CRV	Metal	Aluminum	N/A	N/A (CRV)
Aluminum Bottles – non-CRV	Metal	Aluminum	Non-aerosol container w/o plastic component	Aluminum Containers – Non-CRV
Aluminum Bottles – non-CRV	Metal	Aluminum	Non-aerosol container w/ plastic component	Aluminum Containers – Non-CRV
Aluminum Bottles for Beverages – CRV	Metal	Aluminum	N/A	N/A (CRV)
Aluminum Cans and Lids – non-CRV	Metal	Aluminum	Non-aerosol container w/o plastic component	Aluminum Containers – Non-CRV
Aluminum Cans and Lids – non-CRV	Metal	Aluminum	Non-aerosol container w/ plastic component	Aluminum Containers – Non-CRV

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
Aluminum Foil (<3 mm), Sheets	Metal	Aluminum	Foil sheets w/o a plastic component	Other Aluminum
Aluminum Foil (<3 mm), Sheets	Metal	Aluminum	Foil sheets w/ a plastic component	Other Aluminum
Aluminum Foil (>3 mm), Molded Containers	Metal	Aluminum	Foil Molded Containers w/o plastic component	Other Aluminum
Aluminum Foil (>3 mm), Molded Containers	Metal	Aluminum	Foil Molded Containers w/ plastic component	Other Aluminum
Other Ferrous Metal	Metal	Other Ferrous	N/A	N/A
Other Nonferrous Metal	Metal	Other Nonferrous	N/A	N/A
Tin/Steel Beverage Containers – CRV	Metal	Tin/Steel/ Bimetal	N/A	N/A (CRV)
Tin/Steel Cans, Lids – non-CRV	Metal	Tin/Steel/ Bimetal	Non-aerosol container w/o plastic component	Tin/Steel/ Bimetal – Non-CRV
Tin/Steel or Aluminum Aerosol Containers	Metal	Aluminum	Aerosol can w/ plastic component	Tin/Steel/ Bimetal – Non-CRV
Tin/Steel Aerosol Containers	Metal	Tin/Steel/ Bimetal	Aerosol can w/ plastic component	Tin/Steel/ Bimetal – Non-CRV
Remainder/ Composite Metal	Metal	Metal	N/A	N/A
Fines and Residuals	Metal	Metal	Small – Two or more sides measuring two inches or less w/o plastic component	Small Format – Metal

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
Fines and Residuals	Metal	Metal	Small – Two or more sides measuring two inches or less w/ plastic component	Small Format – Metal
Aseptic Containers – non-CRV	Paper and Fiber	Multi-Material Laminate	Aseptic Cartons	Aseptic Cartons
Clean Molded Paper Fiber	Paper and Fiber	Molded Fiber	All Forms w/o plastic component	Molded Pulp
Clean Molded Paper Fiber	Paper and Fiber	Molded Fiber	All Forms w/ plastic component	Molded Pulp
Folded Paper Containers and Other Paperboard Packaging	Paper and Fiber	Paperboard	All Forms w/o plastic component	Paperboard
Folded Paper Containers and Other Paperboard Packaging	Paper and Fiber	Paperboard	All Forms w/ plastic component	Paperboard
Gable-top Cartons – non-CRV	Paper and Fiber	Multi-Material Laminate	Gable-top Cartons	Gable-Top Cartons
Gable-top Cartons/ Aseptics – CRV	Paper and Fiber	Multi-Material Laminate	N/A	N/A (CRV)
Magazines and Catalogs	Paper and Fiber	Other/Mixed Paper	N/A	N/A
Newspapers/ Newspaper Inserts	Paper and Fiber	Other/Mixed Paper	N/A	N/A
Other Mixed Paper	Paper and Fiber	Other/Mixed Paper	N/A	N/A

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
Paper Bags and Kraft Paper	Paper and Fiber	Kraft Paper	All Forms w/o plastic component	Kraft Paper
Paper Bags and Kraft Paper	Paper and Fiber	Kraft Paper	All Forms w/ plastic component	Kraft Paper
Remainder/ Composite Fiber	Paper and Fiber	OCC	N/A	N/A
Uncoated Corrugated Cardboard/Old Corrugated Containers (OCC)	Paper and Fiber	OCC	Cardboard w/o plastic component	OCC
Uncoated Corrugated Cardboard/Old Corrugated Containers (OCC)	Paper and Fiber	OCC	Cardboard w/ plastic component	OCC
White Office-Type Paper and Mail	Paper and Fiber	White Paper	N/A	N/A
Composite Food Service Paper & Packaging	Paper and Fiber	Multi-Material Laminate	Other Forms w/ plastic component	Other Lined Paper
Fines and Residuals	Paper and Fiber	Paper and Fiber	Small – Two or more sides measuring two inches or less w/o plastic component	Small Format – Paper
Fines and Residuals	Paper and Fiber	Paper and Fiber	Small – Two or more sides measuring two inches or less w/ plastic component	Small Format – Paper
Other Multi-Material Laminate Single-Use	Paper and Fiber	Multi-Material Laminate	Other Forms w/ plastic component	Multi-Material Laminate

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
Fines and Residuals	Plastic	Plastic	Small – Two or more sides measuring two inches or less	Small Format – Plastic
Mailing Pouches & Shipping Envelopes	Plastic	Multi-Material Laminate	Pouches and Envelopes	Multi-Material Laminate
Other Multi-Material Laminate Single-Use	Plastic	Multi-Material Laminate	Other Forms	Multi-Material Laminate
Textiles and Clothing	Plastic	Other/Mixed Plastics	Textiles	Plastic-based Textiles
Films – Plastic Bags – Compostable	Plastic	Plastics and Polymers Designed for Compostability	Flexible and Film Items	Plastics and Polymers Designed for Compostability – Flexibles and Films
Films – Plastic Bags – Designed for Disposal	Plastic	HDPE (#2)	Flexible and Film Items	Plastic #2 – HDPE Flexibles and Films
Films – Plastic Bags – Designed for Disposal	Plastic	LDPE (#4)	Other Flexible and Film Items	Plastic #4 – Mono LDPE Flexibles and Films
Films – Plastic Bags – Designed for Disposal	Plastic	Other/Mixed Plastics	Flexible and Film Items	Plastic – #7 Other Flexible and Films
Films – Plastic Bags – Designed for Disposal	Plastic	PET (#1)	Flexible and Film Items	Plastic #1 – PET Flexibles and Films
Films – Plastic Bags – Designed for Disposal	Plastic	PP (#5)	Other Flexible and Film Items	Plastic #5 – Mono PP Flexibles and Films
Films – Plastic Bags – Designed for Disposal	Plastic	PS (#6)	Flexible and Film Items	Plastic #6 – PS Flexibles and Films

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
Films – Plastic Bags – Designed for Disposal	Plastic	PVC (#3)	Flexible and Film Items	Plastic #3 – PVC Flexibles and Films
Films – Plastic Bags – Designed for Reuse	Plastic	HDPE (#2)	N/A	N/A
Films – Plastic Non-Bags – Agricultural and Commercial	Plastic	HDPE (#2)	Flexible and Film Items	Plastic #2 – HDPE Flexibles and Films
Films – Plastic Non-Bags – Agricultural and Commercial	Plastic	LDPE (#4)	Clear Non-Bag Film	Plastic #4 – Mono LDPE Flexibles and Films
Films – Plastic Non-Bags – Agricultural and Commercial	Plastic	LDPE (#4)	Other Flexible and Film Items	Plastic #4 – Mono LDPE Flexibles and Films
Films – Plastic Non-Bags – Agricultural and Commercial	Plastic	Other/Mixed Plastics	Flexible and Film Items	N/A
Films – Plastic Non-Bags – Agricultural and Commercial	Plastic	PET (#1)	Flexible and Film Items	Plastic #1 – PET Flexibles and Films
Films – Plastic Non-Bags – Agricultural and Commercial	Plastic	PP (#5)	Clear Non-Bag Film	Plastic #5 – Mono PP Flexibles and Films
Films – Plastic Non-Bags – Agricultural and Commercial	Plastic	PP (#5)	Other Flexible and Film Items	Plastic #5 – Mono PP Flexibles and Films
Films – Plastic Non-Bags – Agricultural and Commercial	Plastic	PS (#6)	Flexible and Film Items	Plastic #6 – PS Flexibles and Films
Films – Plastic Non-Bags – Agricultural and Commercial	Plastic	PVC (#3)	Flexible and Film Items	Plastic #3 – PVC Flexibles and Films

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
Films – Plastic Non-Bags – Other Film	Plastic	HDPE (#2)	Flexible and Film Items	Plastic #2 – HDPE Flexibles and Films
Films – Plastic Non-Bags – Other Film	Plastic	LDPE (#4)	Clear Non-Bag Film	Plastic #4 – Mono LDPE Flexibles and Films
Films – Plastic Non-Bags – Other Film	Plastic	LDPE (#4)	Other Flexible and Film Items	Plastic #4 – Mono LDPE Flexibles and Films
Films – Plastic Non-Bags – Other Film	Plastic	Other/Mixed Plastics	Flexible and Film Items	Plastic – #7 Other Flexible and Films
Films – Plastic Non-Bags – Other Film	Plastic	PET (#1)	Flexible and Film Items	Plastic #1 – PET Flexibles and Films
Films – Plastic Non-Bags – Other Film	Plastic	PP (#5)	Clear Non-Bag Film	Plastic #5 – Mono PP Flexibles and Films
Films – Plastic Non-Bags – Other Film	Plastic	PP (#5)	Other Flexible and Film Items	Plastic #5 – Mono PP Flexibles and Films
Films – Plastic Non-Bags – Other Film	Plastic	PS (#6)	Flexible and Film Items	Plastic #6 – PS Flexibles and Films
Films – Plastic Non-Bags – Other Film	Plastic	PVC (#3)	Flexible and Film Items	Plastic #3 – PVC Flexibles and Films
HDPE Buckets: Food	Plastic	HDPE (#2)	Other Rigid Items	Plastic #2 – HDPE Pails and Buckets
HDPE Buckets: non-Food	Plastic	HDPE (#2)	Other Rigid Items	Plastic #2 – HDPE Pails and Buckets

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
HDPE Clear Beverage Bottles – CRV	Plastic	HDPE (#2)	N/A	N/A (CRV)
HDPE Clear Beverage Bottles – non-CRV	Plastic	HDPE (#2)	Bottles, Jugs and Jars (Clear/Natural)	Plastic #2 – HDPE (pigmented and natural) Bottles, Jugs, Jars – Non-CRV
HDPE Pigmented Single-Use Rigids	Plastic	HDPE (#2)	Bottles, Jugs and Jars (Pigmented/Color)	Plastic #2 – HDPE (pigmented and natural) Bottles, Jugs, Jars – Non-CRV
HDPE Pigmented Single-Use Rigids	Plastic	HDPE (#2)	Pails & Buckets	Plastic #2 – HDPE Pails and Buckets
HDPE Pigmented Single-Use Rigids	Plastic	HDPE (#2)	Other Rigid Items	Plastic #2 – Other HDPE Rigid
LDPE Clear Beverage Bottles	Plastic	LDPE (#4)	Bottles, Jugs and Jars	Plastic #4 – LDPE Bottles and Jugs
LDPE Clear Single-Use Rigids	Plastic	LDPE (#4)	Bottles, Jugs and Jars	Plastic #4 – LDPE Bottles and Jugs
LDPE Clear Single-Use Rigids	Plastic	LDPE (#4)	Other Rigid Items	Plastic #4 – Other LDPE Rigid
LDPE Multi-Use	Plastic	LDPE (#4)	N/A	N/A
LDPE Pigmented Single-Use Rigids	Plastic	LDPE (#4)	Bottles, Jugs and Jars	Plastic #4 – LDPE Bottles and Jugs
LDPE Pigmented Single-Use Rigids	Plastic	LDPE (#4)	Other Rigid Items	Plastic #4 – LDPE Bottles and Jugs
Mixed Plastic Multi-Use	Plastic	Other/Mixed Plastics	N/A	N/A

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
Other (7) Single-Use Rigid	Plastic	Other/Mixed Plastics	Rigid Items	Plastic #7 – Other Rigid Plastics
Other (7) Single-Use Rigid	Plastic	Plastics and Polymers Designed for Compostability	Rigid Items	Plastics and Polymers Designed for Compostability – Rigid Items
Other HDPE Clear Single-Use Rigid	Plastic	HDPE (#2)	Bottles, Jugs and Jars (Clear/Natural)	Plastic #2 – HDPE (pigmented and natural) Bottles, Jugs, Jars – Non-CRV
Other HDPE Clear Single-Use Rigid	Plastic	HDPE (#2)	Pails & Buckets	Plastic #2 – HDPE Pails and Buckets
Other HDPE Clear Single-Use Rigid	Plastic	HDPE (#2)	Other Rigid Items	Plastic #2 – Other HDPE Rigid
Other HDPE Multi-Use Rigid	Plastic	HDPE (#2)	Other Rigid Items	Plastic #2 – Other HDPE Rigid
Other PET Clear Single-Use Rigid	Plastic	PET (#1)	Bottles, Jugs, and Jars (Clear/Natural)	Plastic #1 – PET Clear Bottles, Jugs, Jars – Non-CRV
Other PET Clear Single-Use Rigid	Plastic	PET (#1)	Other Rigid Containers, Cups, Lids, Plates, Trays, Tubs	Plastic #1 – Other PET Rigid
Other PET Clear Single-Use Rigid	Plastic	PET (#1)	Other Rigid Items	Plastic #1 – Other PET Rigid
Other PET Pigmented Single-Use Rigid	Plastic	PET (#1)	Bottles, Jugs, and Jars (Pigmented/Color)	Plastic #1 – PET Pigmented Bottles, Jugs, Jars – Non-CRV

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
Other PET Pigmented Single-Use Rigids	Plastic	PET (#1)	Other Rigid Containers, Cups, Lids, Plates, Trays, Tubs	Plastic #1 – Other PET Rigid
Other PET Pigmented Single-Use Rigids	Plastic	PET (#1)	Other Rigid Items	Plastic #1 – Other PET Rigid
PET Clear Beverage Bottles – CRV	Plastic	PET (#1)	N/A	N/A (CRV)
PET Clear Bottles – non-CRV	Plastic	PET (#1)	Bottles, Jugs, and Jars (Clear/Natural)	Plastic #1 – PET Clear Bottles, Jugs, Jars – Non-CRV
PET Multi-Use Rigids	Plastic	PET (#1)	N/A	N/A
PET Pigmented Beverage Bottles – CRV	Plastic	PET (#1)	N/A	N/A (CRV)
PET Pigmented Bottles – non-CRV	Plastic	PET (#1)	Bottles, Jugs, and Jars (Pigmented/Color)	Plastic #1 – PET Pigmented Bottles, Jugs, Jars – Non-CRV
PET Thermoformed Clamshells and Containers	Plastic	PET (#1)	Other Rigid Containers, Cups, Lids, Plates, Trays, Tubs	Plastic #1 – Other PET Rigid
Plastic Wine Bladders	Plastic	Other/Mixed Plastics	N/A	N/A (CRV)
PP Clear Single-Use Rigids	Plastic	PP (#5)	Bottles, Jugs and Jars	Plastic #5 – PP Rigid Items
PP Clear Single-Use Rigids	Plastic	PP (#5)	Other Rigid Containers, Cups, Lids, Plates, Trays, Tubs	Plastic #5 – PP Rigid Items
PP Clear Single-Use Rigids	Plastic	PP (#5)	Other Rigid Items	Plastic #5 – PP Rigid Items
PP Clear Single-Use Rigids	Plastic	PP (#5)	Utensils	Plastic #5 – Other PP

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
PP Pigmented Single-Use Rigids	Plastic	PP (#5)	Bottles, Jugs and Jars	Plastic #5 – PP Rigid Items
PP Pigmented Single-Use Rigids	Plastic	PP (#5)	Other Rigid Containers, Cups, Lids, Plates, Trays, Tubs	Plastic #5 – PP Rigid Items
PP Pigmented Single-Use Rigids	Plastic	PP (#5)	Other Rigid Items	Plastic #5 – PP Rigid Items
PP Pigmented Single-Use Rigids	Plastic	PP (#5)	Utensils	Plastic #5 – Other PP
PS Densified: Multi-Use	Plastic	PS (#6)	N/A	N/A
PS Densified: Single-Use Food Service Ware	Plastic	PS (#6)	Utensils	Plastic #6 – Other PS
PS Densified: Single-Use Food Service Ware	Plastic	PS (#6)	Solid Hinged Containers, Plates, Cups, Tubs, Trays, and Other Solid Forms	Plastic #6 – PS Rigid Items
PS Expanded – Food Service Ware	Plastic	PS (#6)	Expanded/ Foamed Hinged Containers, Plates, Cups, Tubs, Trays, and Other Foamed Containers	Plastic #6 – EPS Rigid Items
PS Expanded – Packaging	Plastic	PS (#6)	Expanded/ Foamed Hinged Containers, Plates, Cups, Tubs, Trays, and Other Foamed Containers	Plastic #6 – EPS Rigid Items
PS Expanded – Packaging	Plastic	PS (#6)	Other Expanded/ Foamed Forms	Plastic #6 – EPS Rigid Items

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
PS Thermoformed Clamshells and Containers	Plastic	PS (#6)	Solid Hinged Containers, Plates, Cups, Tubs, Trays, and Other Solid Forms	Plastic #6 – EPS Rigid Items
PVC Multi-Use	Plastic	PVC (#3)	N/A	N/A
PVC Single-Use Rigids	Plastic	PVC (#3)	Rigid Items	Plastic #3 – PVC Rigid
Unknown Plastic Type or Mixture of Multiple Plastic Resins (Single-Use)	Plastic	Other/Mixed Plastics	Rigid Items	Plastic #7 – Other Rigid Plastics
Unknown Plastic Type or Mixture of Multiple Plastic Resins (Single-Use)	Plastic	Plastics and Polymers Designed for Compostability	Rigid Items	Plastics and Polymers Designed for Compostability – Rigid Items
Fines and Residuals	Wood and Other Organic Material	Wood and Other Organic Materials	Small – Two or more sides measuring two inches or less w/o plastic component	Small Format – Wood and Organics
Fines and Residuals	Wood and Other Organic Material	Wood and Other Organic Materials	Small – Two or more sides measuring two inches or less w/ plastic component	Small Format – Wood and Organics
Green Material, Clean Wood, and Food Scraps	Wood and Other Organic Material	Other/Mixed Organic	N/A	N/A

SB 343 MTF Name	Material Class	Material Type	CMC Material Form	CMC Processing Group
Plant Material Food Service Ware	Wood and Other Organic Material	Other/Mixed Organic	N/A	N/A
Plant Material Food Service Ware	Wood and Other Organic Material	Other/Mixed Organic	Other Forms w/ plastic component	All Other Wood and Organics
Textiles and Clothing	Wood and Other Organic Material	Other/Mixed Organic	Textiles w/o plastic component	All Other Textiles
Textiles and Clothing	Wood and Other Organic Material	Other/Mixed Organic	Textiles w/ plastic component	All Other Textiles
Treated Wood	Wood and Other Organic Material	Wood	All Treated or Painted Forms w/o plastic component	Wood – Treated
Treated Wood	Wood and Other Organic Material	Wood	All Treated or Painted Forms w/ plastic component	Wood – Treated

The mapping assisted the contractor in developing facility-specific CMC processing group quantities because data were not provided by facilities in this level of detail. Where RDRS tonnage did not exist, the contractor supplemented with survey information and internal resources. The contractor also used survey information to check RDRS data and utilized survey information instead of RDRS if survey data were more complete.

A-3.2 OPF Tonnage Data Modeling

A-3.2.1 Inbound Material

To estimate statewide permitted maximum tonnage at facilities that could potentially accept covered material, the contractor used data from SWIS to estimate capacity by region, as shown in Table A-5. Only facilities that were currently active and likely to accept covered materials based on their current permit tier and allowable feedstocks were considered for this evaluation.

To estimate actual inbound quantity from composting facilities, the contractor applied a range of operational percentages based on facility size, reflecting how larger facilities tend to operate closer to their permitted limits while smaller facilities often run below capacity. These operational rates were informed by survey responses and discussions with facility operators and were used to convert permitted capacity values into estimates of actual inbound quantities. On average, facilities operated at approximately 69% of their permitted capacity, with a total estimated actual inbound quantity of 5,720,000 TPY compared to the total permitted capacity of 8,307,000 TPY (which includes both composting and in-vessel digestion systems as shown in Table A-5). Based on this analysis, a statewide remaining capacity of 31% was estimated, representing the portion of the permitted tonnage that is not currently utilized. This remaining capacity highlights the potential for increased material processing within existing infrastructure, assuming appropriate feedstock availability and market conditions. However, some facilities may not be able to operate at their permitted capacity, due to limitations in staffing, availability of feedstock, space available onsite, and equipment cost.

Table A-5: Organics Processing Permitted Maximum Tonnage and Estimated Actual Inbound by Region

Facility Type	Bay Area	Coastal	Mountain	Southern	Valley	Total Statewide
Permitted Maximum Tonnage (TPY) – Composting	1,079,000	767,000	15,600	1,861,600	3,575,000	7,298,200
Permitted Maximum Tonnage (TPY) – In-Vessel Digestion	265,200	109,200	0	488,800	145,600	1,008,800
Total Permitted Maximum Tonnage (TPY)	1,344,200	876,200	15,600	2,350,400	3,720,600	8,307,000
Estimated Actual Inbound Quantity (TPY) – Composting	702,000	494,000	7,800	1,196,000	2,667,600	5,067,400
Estimated Actual Inbound Quantity (TPY) – In-Vessel Digestion	171,600	70,200	0	317,200	93,600	652,600
Total Estimated Actual Inbound Quantity (TPY)	873,600	564,200	7,800	1,513,200	2,761,200	5,720,000

A-3.2.2 Outbound Material

For this study, entities that convert material into a recycled organic product—including composting and in-vessel digestion facilities—are designated as end markets for such material. These facilities generally also process material. Outbound materials from organics facilities considered end markets were not included in this report.

A-4. Processing Facility Selection and Outreach Methodology

A-4.1 Recycling Processing Facilities

A-4.1.1 Facility Selection

The contractor identified five key selection characteristics for conducting interested party engagement with processing facilities:

- Facility size.
- Site location/region.
- Materials accepted.
- Facility technology.
- Operator type.
- Operations co-located with other target operations (e.g., OPFs).

The following sections explain each characteristic and then provide the number of engaged facilities.

Facility Size

For this study, “processing” means to sort, segregate, and clean material to prepare it to meet the specification for sale to an end market. CalRecycle has a tiered permitting approach for material stream-specific facilities and their unique operations. To meet project objectives, the contractor focused on the following processing operations or facilities, as defined in SWIS:

- **Medium Volume Transfer/Processing Facility:** A facility that is permitted to receive equal to or greater than 60 cubic yards or 15 tons (whichever is greater) of solid waste per operating day but less than 100 tons of solid waste, for the purpose of storing, handling, or processing the waste prior to transferring the waste to another solid waste operation or facility (14 CCR 17402(a)(11)).
- **Large Volume Transfer/Processing Facility:** A facility that is permitted to receive 100 tons or more of solid waste per operating day for the purpose of storing, handling, or processing the waste prior to transferring the waste to another solid waste operation or facility (14 CCR 17402.2(a)(8)).

The following facility types were not included:

- **Direct Transfer Facility:** Excluded because the contractor does not believe that any processing is occurring at these facilities.
- **Small Volume Transfer/Processing Facility:** Excluded because insignificant material quantities are managed at these facilities.

- Limited Volume Transfer Operation: Excluded because insignificant material quantities are managed at these facilities.

Medium and Large Volume Transfer/Processing Facilities are the most likely permitting tiers for recycling processing facilities. Within this category, transfer stations without any on-site processing were not included in the analysis.

Large Volume Transfer/Processing Facilities represent a range of permitted capacities and were classified into one of three throughput ranges:

- Small facilities: <250 tons per day, or TPD (all Medium Volume Transfer/Process facilities are considered “small” based on TPD).
- Medium facilities: >250 TPD to <500 TPD.
- Large facilities: >500 TPD.

Site Location/Region

The contractor selected sites representing California’s five regions (Bay Area, Coastal, Mountain, Southern, and Valley) to capture the technological capabilities, feedstocks, throughput capacities, and other trends that vary by region.

Materials Accepted

For this study, the contractor focused on medium and large volume processing facilities that manage covered material from both residential and commercial sources. This included the following defined CMC classes:

- Glass.
- Metal.
- Paper and fiber.
- Plastic.

The ceramic CMC class was not part of the selection criteria for recycling processing facilities because these materials are generally not currently accepted or processed by any facilities. Wood and other organics CMC class was considered for OPF selection.

Facility Technology

The contractor also selected medium and large volume processing facilities that manage covered materials through various technologies, including single stream, dual stream, and mixed waste processing facilities.

Operator

The contractor selected facilities with different operator types to include both private and public entities and to not include more than two sites owned by the same parent entity in the same outreach category. The contractor also considered entities that own or operate multiple sites for the survey and interview outreach because these entities

could provide useful information as it relates to the project objectives on a much broader scale than an entity that only owns or operates one facility.

Operations Co-located with Other Target Operations

To improve the efficiency of the outreach efforts and gain insight into operations with built-in vertical integration, the contractor prioritized operations or facilities with multiple co-located activities. For example, site visits and survey engagement were prioritized for MRFs that are co-located with an OPF.

A-4.1.2 Survey Outreach Approach

The contractor identified contact information for each selected facility using the following resources:

- Facility information from CalRecycle’s SWIS database.
- Contractor relationships with facility contacts in California.
- Coordination with industry experts to identify the correct contact at target facilities.
- Coordination with CalRecycle, including facility information from RDRS reporting.

The contractor used these resources to identify a contact person at each facility with the knowledge or site contacts to respond to requested survey information. Additionally, the contractor engaged with contacts at the corporate level that oversee multiple processing facilities to request participation and secure the appropriate facility operator contacts for each selected site.

A-4.1.3 Facility Participation

Table A-6, Table A-7, and Table A-8 summarize engagement conducted with processing facilities by engagement type, facility size, and ownership type by region.

Table A-6. Total Number of Respondents by Engagement Type and Region

Engagement Type	Bay Area	Coastal	Mountain	Southern	Valley	Statewide
Site Visit	5	3	1	4	2	15
Interview	6	2	0	2	2	12
Survey	1	1	0	5	2	9
Total	12	6	1	11	6	36

Table A-7. Total Number of Respondents by Size and Region

Size	Bay Area	Coastal	Mountain	Southern	Valley	Statewide
Small	2	2	0	1	1	6
Medium	2	1	1	2	0	6
Large	8	3	0	8	5	24
Total	12	6	1	11	6	36

Table A-8. Total Number of Respondents by Owner Type

Owner Type	Bay Area	Coastal	Mountain	Southern	Valley	Statewide
Private	8	3	1	6	5	23
Public	4	3	0	5	1	13
Total	12	6	1	11	6	36

Facilities were contacted for site visits, interviews, or survey-only participation via email at least twice. The contractor also called facilities who did not respond to the email communications. Despite the enhanced engagement, the contractor was only able to complete 12 interviews, 15 site visits, and nine surveys. Table A-9 summarizes the completed engagements compared to the quantities targeted in the study design.

Table A-9. Summary of Engagement Results

Activity	Targeted	Complete	No Response	Total Contacted
Site Visit	20	18	6	24
Interview	10	10	12	22
Survey	25	8	41	49
Total	55	36	59	95

A-4.2 Organics Processing Facilities

OPFs in California were asked to participate in a survey to determine current system functioning, gaps, challenges, opportunities for growth, and needed improvements. The survey was distributed to selected participants, and each selected entity was asked to participate in a site visit, virtual interview, or online survey. Participants included both composting and in-vessel digestion facilities. Selected facilities were located throughout California, using various processing types, and included both public and private entities.

A-4.2.1 Facility Selection

CalRecycle's SWIS database was used to identify OPFs throughout California. There are approximately 480 OPFs listed in CalRecycle's SWIS database (as of April 2025).

The contractor developed four key selection characteristics for conducting engagement with facilities, which included the following:

- Operating status.
- Processing technology.
- Location by region.
- Public or private facility.

The contractor used these characteristics to create a preliminary facility list for site visits, interviews, and survey outreach. Accurately categorizing OPFs presents challenges due to variation in facility types, operational practices, and permitting structures. Facilities may accept a range of organic materials, and distinctions between covered materials and other inputs are not always clearly defined or tracked in the data sources available. The contractor used information and definitions available in SWIS to identify the facilities that are anticipated to be most relevant to the needs assessment based on the criteria discussed.

Operating Status

Many OPFs included in the SWIS database are not currently active. For this survey, only active facilities were included, which are defined as “an operational status for a facility or operation currently accepting, handling, processing, or disposing waste. For disposal facilities and operations, this includes sites that have received timeline extensions pursuant to 27 CCR 21110(b)” (CalRecycle 2025a). Facilities that are classified as absorbed, planned, inactive, clean closed, or closed were not included in the study.

Processing Technology

For this study, active facilities permitted under the following types of operations were considered:

- Composting Facilities.
- Composting.
- Composting Facility (Mixed).
- Composting Facility (Other).
- Research Composting Operation.
- Vegetative Food Material Composting.
- In-Vessel Digestion Facilities.
- Distribution Center In-Vessel Digestion Facility.
- Large Volume In-Vessel Digestion Facility.
- Medium Volume In-Vessel Digestion Facility.

- Limited Volume In-Vessel Digestion Operation.

Facilities that did not receive covered material as an inbound material were not selected for outreach. This included facilities that were classified as Agricultural Material Composting Operations, Biosolids Composting at POTWs, Chipping and Grinding Facility/Operations, Green Material Composting Facilities, Green Material Composting Operations, and Sludge Composting Facilities (CalRecycle 2025a).

The contractor selected sites representing California's five regions (Bay Area, Coastal, Mountain, Southern, and Valley) to capture the technological capabilities, feedstocks, throughput capacities, and other trends that vary by region.

The contractor selected various operator types to include both private and public entities because each type may have different goals, priorities, and interested parties involved.

A-4.2.2 Survey Outreach Approach

The contractor targeted the following participation levels from facilities in the state:

- Eight site visits.
- Five virtual interviews.
- 25 surveys.

The contractor conducted initial outreach in June 2025. Facility contact information was collected using the following sources:

- SWIS.
- Desktop research.
- Contractor relationships with facilities in California.

The initial outreach to facilities was via email. The outreach email included a brief introduction to the Act, the importance of participation in the survey, how the information collected from the survey would be used, and how facility data would be kept confidential. It also included a link to the online survey. Facilities were offered a nondisclosure agreement (NDA) on request to promote participation in the survey. When possible, members of the contractor with existing relationships with facility staff conducted the initial outreach. This technique was used to promote participation from facilities. Some entities own or operate multiple facilities. In those cases, the contractor identified a point of contact with those entities to help coordinate responses from multiple facilities. If facility staff did not respond, the contractor followed up several times via phone call and email.

A-4.2.3 Facility Participation

The contractor attempted to reach target participation rates for site visits, interviews, and surveys via repeated outreach, using relationships with the contractor for outreach and offering NDAs. Table A-10 shows the target and actual participation rates for site visits, interviews, and surveys. The contractor was able to conduct more site visits and

interviews than targeted. However, fewer facilities filled out the survey than the target number.

The contractor used various methods to attempt to increase participation from targeted facilities, including conducting multiple outreach attempts via phone and email, coordinating with industry contacts throughout California, and offering NDAs or confidentiality agreements. Facilities that were asked to complete the online survey were given the option to meet with the contractor virtually for an interview instead. Some entities that own or operate multiple facilities coordinated with the contractor directly before electing to not participate in the effort.

Table A-10: OPF Participation in Site Visits, Interviews, and Surveys

Activity	Targeted	Complete	No Response	Total Contacted
Site Visit	8	10	3	13
Interview	5	5	3	8
Survey	25	6	16	22
Total	38	21	22	43

Engaged facilities were asked to report what technology types they used. As shown in Table A-11, most engaged facilities (14) reported that they only use composting technologies, while some facilities reported using both in-vessel digestion and composting technologies.

Table A-11: OPF Survey Participation by Facility Type

Technology Type	Number of Engaged Facilities Using Technology
In-Vessel Only	4
Compost Only	14
Both	3

Table A-12 summarizes the number of engaged facilities in each region.

Table A-12: OPF Engagement Participation by Region

	Bay Area	Coastal	Mountain	Southern	Valley	Statewide
Number of Facilities	6	5	0	5	5	21

Table A-13 summarizes the number of facilities engaged by ownership type. A small majority (12 facilities) are owned by private entities, while nine facilities are publicly owned.

Table A-13: OPF Survey Participation by Ownership Type

	Number of Surveyed Facilities
Private	12
Public	9

A-5. Community-Based Organizations, Environmental Justice Groups, and California Native American Tribes Selection and Survey Methodology

The contractor conducted a survey of interested parties representing priority populations (CBOs, EJ groups, and Tribes) to collect data on community recycling and composting practices, such as levels of access, materials collected, and infrastructure capacity. This survey, known as the “Community Recycling and Composting Survey,” was developed for CBOs, EJ groups, and Tribes to help the contractor understand the perspectives of priority populations in relation to past, current, and future recycling collection services and processing infrastructure. This information is intended to fill knowledge gaps to support current and needed state reports.

The Community Recycling and Composting Survey was distributed to selected participants, who were each also asked to participate in a virtual introduction meeting and listening sessions. The CBOs, EJ groups, and Tribes that participated in the study were located throughout California.

A-5.1 CBO, EJ Group, and Tribe Selection

The contractor selected CBOs and EJ groups from each region of California based on information about overall population, population density, access to education information for recycling, availability of recycling options, and the interested parties’ focus on environmental or waste issues. All groups were obtained from the 2020 California Census Statewide Partners list and the use of CalEnviroScreen 4.0 data. The contractor contacted a total of 43 CBOs and EJ groups to participate in the study. A total of 324 surveys were received from CBOs and EJ groups, and 14 CBOs and EJ groups participated in introductory meetings and listening sessions.

The contractor selected Tribes for participation in the study based on several factors, including Tribal demographics, proximity to major urban centers, the presence of an internal Tribal environmental program, and demonstrated efforts to promote recycling within Tribal operations. The goal of identifying Tribes for participation was to ensure diverse geographic and cultural representation, as well as include Tribes with varying levels of existing engagement in recycling and environmental sustainability programs. The contractor attempted to identify a contact person within each Tribe who could complete the Community Recycling and Composting Survey and participate in project-

related engagement activities. If the contractor could not identify a contact person, assistance was provided by CalRecycle.

The contractor Tribal liaison identified 20 Tribes to contact for their expertise related to the study in collaboration with CalRecycle.¹ These Tribes were contacted through a combination of emails and phone calls to encourage participation, answer questions, and provide additional information about the study's purpose and expected outcomes. Three Tribes participated in engagement activities, resulting in eight completed surveys, and participation from six individuals from all three Tribes at various introductory meetings and listening sessions.

A-5.2 Survey Development

The Community Recycling and Composting Survey was developed to gather information and expertise from communities representing priority populations and was distributed to CBOs, EJ groups, and Tribes. This survey included questions about barriers to access recycling and composting systems, the environmental and community impacts of those systems, and related education and outreach materials respondents have received in the past. Appendix F contains the survey content.

In addition to being available in English, the survey was translated into Spanish and simplified Chinese. Tribes received an adapted version of the Community Recycling and Composting Survey with three questions removed and a modification to the introduction, all noted in Appendix F.

The Community Recycling and Composting Survey was distributed to CBOs and EJ groups on July 18, 2025, and distributed to Tribes on July 25, 2025. Responses were requested by August 29, 2025, for inclusion in the study.

¹ CalRecycle acknowledges that the land of the state of California has been inhabited since time immemorial and recognizes California Native American Tribes as the original stewards of California, whose leadership and partnership can guide us toward a waste-free future.

Table A-14. Community Recycling and Composting Survey Metrics

Organization	Total Number of Surveys Completed	Number of Surveys Completed in Spanish	Number of Surveys Completed in Chinese	Regions Represented
CBOs and EJ Groups	324	0	0	Valley (87) Coastal (46) Southern (108) Mountain (80) Bay Area (3)
Tribes	8	N/A	N/A	Mountain (5) Southern (3)

A-5.3 Engagement Meetings

The contractor conducted four introductory meetings and ten listening sessions to provide an overview of the Act, explain why CBO, EJ group and Tribal involvement matters, present a call to action, identify barriers to participation, discuss community and environmental impacts, and respond to questions. Listening sessions were designed to provide a forum to hear directly from these community members on their experiences and provide more narrative discussion of information captured in the survey. Each CBO, EJ group, and Tribe who attended the introductory meetings were encouraged to attend the listening sessions. Feedback from these listening sessions are presented in Appendix G.

A-5.4 CBO, EJ Group, and Tribal Participation

Appendix G contains the participation rates for the CBO and Tribal virtual introductory meetings and listening sessions. Participation information includes the CBO and Tribe name and area of representation to provide an understanding of the overall response area. It also discusses which communities were not well represented in this study.

A-6. Barriers and Limitations

The following sections summarize the barriers and limitations related to interested party engagement and data analysis for processing facilities and CBOs, EJ groups, and Tribes.

A-6.1 Recycling Processing Facility Barriers and Limitations

A-6.1.1 Data Collection Limitations

- **Sample Size:** Analysis is limited by the number of survey responses and the extent to which the surveys were completed during engagement. For example, limited respondents included detailed cost data. Where possible, additional data

sources were used to supplement survey data (see Appendix A-1) and internal contractor datasets.

- **Representativeness of Samples:** The number of collection survey and community recycling and composting survey responses received varied by region. See Appendix A-4.2.3 for a detailed breakdown of survey respondents by region, facility size, ownership type, and other characteristics.
- **Survey Design:** When designing the survey for MRFs (the MRF survey), the contractor worked with CalRecycle to balance the length and detail of request in an effort to gain a positive survey response rate. The thought was that limiting the number of questions may reduce survey fatigue, and limiting additional write-in responses could streamline analysis; however, this would limit the nuance of responses and confidence in the accuracy and consistency of information reported. The survey was designed to balance response rate and level of granularity to achieve the scope of work with the greatest confidence in the data.
- **Timeline of Survey Data Collection:** The MRF Processing Survey had a brief turnaround time, which may have hindered facilities from participating or submitting complete surveys. Facilities provided feedback to the contractor that they would rather complete an interview than spend time filling out the survey.

Data Specificity: Not all existing data sources used were specific to the Act; therefore, the contractor needed to map material categories from other data sources, such as RDRS and SB 343 Report, to convey all information in terms of CMC processing groups. In some cases, not all material categories matched up, creating minor data gaps. For example, there are quantities of mixed flexibles and films that cannot be mapped to an exact CMC processing group that categorizes film by resin type; therefore, specific tonnage of each outbound CMC processing group from MRFs may not be as granular as initially desired.

A-6.1.2 Analysis Limitations

- **Region Selection:** Regions were selected to align with CalRecycle's most recent waste characterization study. There may be distinct differences within each region that may not be accounted for in the analysis.
- **MRF Identification:** Determining the total number of MRFs in California is challenging because these facilities are not clearly identified by permit. Transfer stations may obtain the same permit as MRFs due to the quantities of material managed daily.
- **Tonnage Modeling:** Because not all facilities responded to the survey or report to CalRecycle, some inbound tonnage information was used from the contractor's internal resources dating as early as 2019 to check key assumptions and fill data gaps for technical operating data. The contractor recognizes that facilities may have changed operations; however, this was the best information available on the regional quantities of managed covered materials.
- **CRV Materials:** While CRV materials were not included in the analysis, the contractor did estimate CRV materials that are present based on the SB 343 bale

audit. Because these materials may be reported through RDRS as going to end markets, some tonnage for covered materials (Tin/Steel/Bimetal and Glass) may contain quantities of noncovered CRV materials. The contractor estimated quantities of CRV material within bales to be removed from the total outbound tonnage.

- **Tonnage Mapping Across Reports:** Data sources were not identified for the composition of inbound tonnage specific to CMCs. Therefore, the contractor used the composition of outbound materials to identify specific inbound CMC processing groups within the broader inbound CMC collection group tonnages in the current state collection report. To convey information in terms of CMC processing groups for inbound materials at the recycling processing facilities, the detailed composition profile of outbound materials was applied to the broader inbound CMC collection groups. For example, plastic #1 – PET rigid inbound material collected via single stream materials collected for recycling was extrapolated to three material categories (plastic #1 – PET clear bottles, jugs, jars – Non-CRV; plastic #1 – PET pigmented bottles, jugs, jars – Non-CRV; and plastic #1 – other PET rigid) utilizing the percentages of each that are reported as being sent to end market for PET rigids.

A-6.2 OPF Barriers and Limitations

A-6.2.1 Data Collection Limitations

- **Sample Size:** The contractor identified and surveyed a broad range of active OPFs across California, including composting and in-vessel digestion operations that receive covered materials. However, analysis was limited by the number of survey responses and the level of detail provided regarding costs, capacity, and material acceptance.
- **Representativeness of Samples:** The distribution of OPFs varies by region, with most processing capacity located in the Southern and Valley regions and the lowest capacity in the Mountain region. Survey responses reflected this regional disparity. Appendix A-4.2.3 provides a breakdown of respondents by region, facility type, and capacity.
- **Survey Design:** In designing the survey for OPFs, careful consideration was given to balancing the level of detail requested with the anticipated response rate. While a more concise survey format was employed to reduce respondent burden and encourage higher participation, this approach inherently limited the granularity of data collected. The survey was structured to achieve an optimal balance between obtaining sufficiently detailed information and maximizing the number of responses, supporting the integrity and objectives of the analysis.
- **Timeline of Survey Data Collection:** The relatively short data collection window may have limited the ability of some facilities to respond fully or submit complete information.
- **Data Specificity:** The surveyed facilities process various material types, including material types that are not covered by the Act. While information about covered

materials was prioritized, some information collected (including material quantities) included other material types, as covered materials are not necessarily tracked separately from other material types.

A-6.2.2 Analysis Limitations

- **Region Selection:** Regions were selected to align with CalRecycle’s most recent waste characterization study. However, regional differences may exist in available feedstocks, facility technology, and operational practices that the survey was not designed to identify.
- **Facility Identification and Classification:** Accurately categorizing OPFs presents challenges due to variation in facility types, operational practices, and permitting structures. Facilities may accept a range of organic materials, and distinctions between covered materials and other inputs are not always clearly defined or tracked. Additionally, the ability to identify and process packaging designed for compostability varies across facilities, which can limit the consistency and accuracy of material flow data.
- **Modeling Limitations:** Detailed material composition data were not provided by the participating OPFs, which prevented direct modeling of site-specific waste streams. To address this, the contractor used waste characterization data from the 2023/2024 Alameda County Waste Characterization Study, prepared on behalf of StopWaste. This dataset offered a breakdown of materials commonly found in organics streams collected from residential and commercial sources in Alameda County.

Using these data, the contractor modeled the incoming material composition and assigned each material category to relevant processing outcome (for example, screened out or incorporated into finished product, based on survey results and contractor experience). Material categories from the study were mapped to the CMCs (as shown in Table A-4 in Appendix A) and compared to estimated statewide inbound organic material quantities at OPFs. This process allowed the contractor to estimate material flows through pre-processing, contamination removal, and downstream recovery or disposal.

A-6.3 CBO, EJ Groups, and Tribal Engagement Limitations

A-6.3.1 Data Collection Limitations

- **Timeline of Survey Data Collection:** The Community Recycling and Composting Survey had a brief turnaround time, which may have hindered community members from participating or submitting complete surveys.
- **Meetings Required Before Survey Distribution:** The survey was finalized in late June; however, introductory meetings had to be held prior to distributing the survey. Most CBOs, EJ groups, and Tribes require at least one month to schedule a meeting and two months to engage with their community. With the tight time frame, the turnaround time required of the CBOs, EJ groups, and Tribes was shorter than optimal.

- **Barriers to Access Online Engagement Activities:** Many of the CBOs and EJ groups who participated in the study had members of their communities who were hard to reach via phone or e-mail. While partnering with CBOs and EJ groups allowed the project the opportunity to connect with those individuals, there was still a significant barrier in collecting data from individuals with no stable primary residence, or reliable access to a computer or internet.

A-6.3.2 Analysis Limitations

- **GIS Mapping:** Availability of priority population data were limited and in some instances surrogate data were required. Specifically:
 - GIS information for rural areas as defined in 50101 of the Health and Safety Code was unavailable. As such, census data were used to identify communities with a population less than 10,000. The definition under section 50101 includes communities with a “population not exceeding 20,000 and is contained within a nonmetropolitan area;” these data were not readily available. Sensitivity analysis showed that using a definition of 10,000 or 20,000 population had insignificant impacts on maps or findings.
- **Facilitated Questions:** The listening sessions did not ask direct questions regarding environmental or health impacts of processing facilities. The contractor relied on answers from the survey.

A-6.3.3 Contractor Engagement Limitations

- **Timeline:** The short time frame for engagement required rapid response from CBOs, EJ groups, and Tribes, which limited participation and the completeness of submitted data.
- **Response Rate:** Engagement with the CBOs, EJ groups, and Tribes occurred during the summer, which may not have been an ideal time of year for individuals to be available to participate. Responses to the introductory meetings, listening sessions, and surveys were not as robust as anticipated.

Appendix B: MRF Survey Questions

The MRF Processing Facility Survey was provided to facilities as an electronic survey form. The survey shows the question list with survey logic identified in italics as applicable.

B-1. Introduction

HF&H Consultants, LLC (HF&H), contracted with HDR Engineering Inc. (HDR) on behalf of the California Department of Resources Recycling and Recovery (CalRecycle), to conduct a survey related to the Plastic Pollution Prevention and Packaging Producer Responsibility Act (Senate Bill 54, Allen, Chapter 75, Statutes of 2022) (the Act). The Act established a new extended producer responsibility (EPR) program to manage single-use packaging and plastic single-use food service ware (covered material) in California.

What is this survey and why participate?

HDR developed this survey to research the current and needed state of California's recycling and composting system for covered materials, specifically regarding processing facilities, including topics such as acceptance, contamination, capacity, equipment, and end markets.

Your responses are valued and critical because:

- Responses will directly inform understanding of current system functioning, gaps, challenges, opportunities for growth, and needed improvements.
- Producers of covered material, largely through the operation of a Producer Responsibility Organization (PRO), will implement plans and budgets designed to meet the law's requirements, including through the disbursement of funds to recycling system providers. Your responses will inform the PRO's plan and budget.
- Limited information exists about the collection system that is specific to covered material.

How do I participate?

Please complete one survey for each recycling facility that you represent that processes single-use packaging or single-use plastic food service ware.

HDR acknowledges that facilities are required to report some of this information to CalRecycle; however, these questions intend to capture additional detail and place a more specific focus on SB 54. Data will not be used to assess compliance with SB 1383, AB 939, AB 1826, or any other regulations for which reporting is required.

HDR staff are available to answer questions at EPRNeedsAssessment@hdrinc.com. The survey can be completed in multiple sessions (i.e., your progress will be saved).

Please complete the survey by July 9. We do understand this is a tight timeline and appreciate your effort in this manner. Participation is voluntary.

Please email EPRNeedsAssessment@hdrinc.com if you would like to put in place a non-disclosure agreement (NDA) before completing the survey.

Questions?

If you have any questions related to this survey or the work being conducted by HF&H, then please email EPRNeedsAssessment@hdrinc.com. If you have questions related to the broader implementation of the Act or the needs assessment, then please email CalRecycle at packaging@calrecycle.ca.gov.

B-2. Contact and General Information

HDR Interviewer (If Applicable):

Date:

Site Name:

Site Owner:

Site Operator:

Site Address:

Site Contact Name:

Email:

Phone #:

Alternate Contact:

If you have additional facilities, please fill out another form specific to that facility.

B-3. Facility Design and Development

1. Select all types of facilities at this site (*Select all that apply*)
 - a. Mixed Waste MRF
 - b. Single Stream MRF
 - c. Dual Stream Containers and Fibers MRF
 - d. Single Stream No Glass MRF
 - e. Transfer (MSW)
 - f. Transfer (recyclables)
 - g. Transfer (organics)

- h. Composting
 - i. Anaerobic Digestion
 - j. Hazardous waste
 - k. Recycling Drop-off
 - l. Other
2. Do you own/operate additional facilities that receive residential or commercial material covered by SB 54? If so, where are they located?
 3. Do you own/operate additional facilities outside of California that receive residential or commercial material covered by SB 54? If so, where are they located?

NOTE: All remaining questions in this survey pertain to the recycling processing facility and operations (please do not include information about trash or organics operations that may take place at the site).

4. From which of the following California Regions do you accept materials for processing services? (*Select all that apply*)
 - a. Bay Area
 - b. Coastal
 - c. Mountain
 - d. Southern
 - e. Valley
5. What year was the facility built?
6. Was there a primary equipment supplier who provided the original equipment?
 - a. Yes
 - b. No
 - c. If yes, who?
7. What year was the facility last renovated? Please describe impact and associated capital costs on specific categories below.
 - a. Processing capacity:
 - b. Storage capacity:
 - c. Tipping floor capacity:
 - d. Worker safety:
 - e. Contamination:
 - f. Other:

8. How many processing lines do you have?
9. What is the process line design capacity for each line (tons per hour)?
10. How much overall capacity is available at your facility (tons per year)?
11. What is the total size of the site (currently used AND available for use in the future) for recycling operations?
 - a. < 2 acres
 - b. 2 – 5 acres
 - c. 5 – 10 acres
 - d. 10 – 20 acres
 - e. >20 acres
12. What is the total square footage of the facility's sorting area (not including tipping and baling)?
 - a. < 10,000 SF
 - b. 10,000 – 25,000 SF
 - c. 25,000 – 50,000 SF
 - d. 50,000 – 100,000 SF
 - e. 100,000 – 150,000 SF
 - f. > 150,000
13. What is the total square footage of the tipping floor?
 - a. < 2,000 SF
 - b. 2,000 – 5,000 SF
 - c. 5,000 – 10,000 SF
 - d. 10,000 – 15,000 SF
 - e. 15,000 – 20,000 SF
 - f. >20,000 SF
14. Do you typically have enough capacity on your tipping floor?
 - a. Yes
 - b. No
15. What is the storage capacity area for outgoing materials (square footage)?
 - a. < 2,000 SF

- b. 2,000 – 5,000 SF
 - c. 5,000 – 10,000 SF
 - d. 10,000 – 15,000 SF
 - e. 15,000 – 20,000 SF
 - f. >20,000 SF
16. Do you typically have enough storage capacity?
- a. Yes
 - b. No
17. Is any storage of materials outdoors or uncovered?
- a. Yes
 - b. No
18. If available, provide a simple layout diagram, floor plan, or list of major equipment as an attachment to your email response.
19. Discuss any facility limitations impacting operations and maintenance (e.g., site is too small, building is too small, equipment outdated, limited bale storage).
- Please describe any potential plans for facility development or expansion based on the following questions. Please provide any available cost estimates.
20. What expansion opportunities would you consider at your facility? How much additional capacity will be added to the facility based on these expansions?
21. Do you have plans to develop another facility? How would the facility size/processing capacity change?
22. What are your plans to upgrade/replace equipment in the next three years? How would that impact your materials processed (e.g., tons processed or contamination)?
23. Do you have plans to add a processing line in the next three years? How would that impact your materials processed/capacity?
24. Do you have plans to increase/overhaul building space and expand capacity? How much additional capacity would that yield?
25. Do you have plans to expand service area or sources of feedstocks?
26. Do you have plans to accept or process new material types?
27. How might the facility improvements/expansions described above impact the labor needs at your facility?
- a. Equipment operators:
 - b. Sorters:

- c. Scale operators:
- d. Maintenance:
- e. Supervisors:
- f. Office/Support staff:

28. How will these potential upgrades impact worker safety?

B-4. Permitting and Construction

29. How long did it take to get the recycling facility permitted?

- a. 1-2 years
- b. 2-3 years
- c. 3-4 years
- d. 4-5 years
- e. >5 years
- f. Uncertain

30. How much did it cost to permit the facility?

31. How long did it take to construct the recycling facility?

- a. <1 year
- b. 1-2 years
- c. >2 years
- d. Uncertain

32. Do you lease the land where the recycling facility is currently located? (*select one*)

- a. Lease
- b. Own

B-5. Labor

33. How many full-time equivalent employees (FTEs) support the facility's operation?

34. Please list number of FTEs in each role:

- a. Equipment operators =
- b. Sorters =
- c. Scale operators =
- d. Maintenance =

- e. Supervisors =
- f. Office/Support staff =
- g. TOTAL =

35. How many shifts per day do you operate

36. How many hours is each shift?

37. How many days per week does your facility operate?

38. What is the total annual labor hours for the employees identified above and fully loaded labor cost?

B-6. Processing Equipment

Please complete the Appendix A – Equipment tab in the spreadsheet provided with this survey.

Provide details on current equipment including any upgrades or additions and impacts of these improvements.

B-7. Accepted Materials

In addition to completing the Appendix B – Accepted Materials tab in the spreadsheet provided with this survey, please complete the following questions:

Note: Please answer the following questions based on the recycling operations at your facility. Mixed recyclables or organics sent for secondary processing from your facility should be noted in the Appendix C – End Markets tab.

39. What percent of your materials are delivered for direct bale (no sortation, does not undergo further processing)?

40. What percent of your material needs to be de-packaged prior to processing?

41. Are there any trends in feedstocks you've observed over the past three years?

- a. Increase/decreases in certain commodity types:
- b. Increase/decreases in contamination types and levels:

42. Provide the following tonnage data:

- a. 5-year Average:
 - i. Mixed Recyclables Accepted (tons/5-year average) =
 - ii. Mixed Recyclables Processed (tons/5-year average) =
 - iii. Direct Bale Processed (tons/5-year average) =

- b. 2024
 - i. Mixed Recyclables Accepted (tons) =
 - ii. Mixed Recyclables Processed(tons) =
 - iii. Direct Bale Processed (total tons, provide by material type in Appendix B) =

43. What average percentage of material received is considered CRV?

44. How are processed materials/bales moved offsite? (select all that apply)

- a. Customer Haul
- b. Dump Truck
- c. Tractor Trailer
- d. Railcar
- e. Other:

45. Please provide any recycling audit reports that are available from your facility as an attachment to your email response.

B-8. Residue/Contamination

46. Estimated tonnage of residue/contamination disposed of annually =

47. Estimated tonnage of baled materials disposed of annually (if applicable) =

48. Annual disposal costs for contamination (per ton) =

49. What are the estimated costs associated with dealing with contamination (including disposal costs identified above)?

- a. Known amount =
- b. <\$1,000 per month
- c. \$1,000 - \$5,000 per month
- d. \$5,000 - \$10,000 per month
- e. \$10,000 – \$50,000 per month
- f. >\$50,000 per month

50. What is the approximate contamination rate of incoming single stream material?

- a. Known amount =
- b. <5%
- c. 5% - 10%
- d. 10% - 20%

- e. 20% - 30%
- f. >30%

51. What is the approximate contamination rate of incoming dual stream material? (if applicable)

- a. Known amount =
- b. <5%
- c. 5% - 10%
- d. 10% - 20%
- e. 20% - 30%
- f. >30%

52. What is the composition of the residue stream by material type (if available)? For example, "50% of the contaminants we receive are plastic film."

- a. % Non-accepted paper products =
- b. % Flexibles and films =
- c. % Non-accepted plastic containers =
- d. % Tanglers =
- e. % Food waste =
- f. % Non-accepted glass =
- g. % Fabrics =
- h. % C&D =
- i. % Mixed Residue =
- j. % Other =

53. How was your composition data from the previous question collected?

- a. Regular data collection conducted by the facility
- b. Study conducted by third party
- c. Personal assessment estimated by survey taker
- d. Other:
- e. No composition provided

54. Do you charge extra if contamination is over a certain threshold?

- a. Yes

b. No

55. If “yes”, what rate?

56. Have you noticed any patterns in which loads you’re rejecting? Please describe.

a. Certain municipalities:

b. Routes:

c. Industry types:

d. Other:

57. Do you have a protocol or SOP for when you reject loads?

a. Yes

b. No

58. How many rejected loads are there per month, on average?

59. Do end markets charge a fee or reduce the price if contamination levels are above a certain point?

a. Yes

b. No

60. Has your facility ever been penalized for contamination?

a. Yes

b. No

If yes, please identify the costs (fee amount, customers lost, or worker injuries.)

B-9. Capital and Operational Costs

61. What was the initial estimated capital cost to develop the facility (including land, building, and processing equipment)?

62. What is your total annual operating cost?

63. How much is budgeted for replacing stationary equipment as a % of total capital cost per year? Or provide a specific cost if available.

64. How much is budgeted for replacing mobile equipment as a % of total capital cost per year? Or provide a specific cost if available.

65. What is the annual utilities (e.g., phone, internet, electricity, fuel, or HVAC.) cost as a percentage of total annual operating costs? Or provide a specific cost if available.

66. What is the tipping fee at your location(s)?

a. MRF =

- b. Transfer station (recycling only) =
- c. Other: =

B-10. End Markets

In addition to filling out the Appendix C – End Markets tab in the spreadsheet provided with this survey, please fill out the following questions:

- 67. What is the average annual revenue received from sale of commodities?
- 68. What specific materials currently lack end markets and need to be prioritized?
- 69. How many tons per year of material are received at this facility and sent for secondary sorting/processing and are not sorted at this facility?
 - a. Mixed Plastics =
 - b. Mixed Recyclables =
- 70. Please upload any bale audit information such as reports or spreadsheets from the last five (5) years as an attachment to your email response.

Appendix C: Aggregated MRF Processing Survey, Interview, and Site Visit Results

C-1. Summary of Surveyed Facilities by Facility Type, Capacity & Service Area

Table C-1 shows the number of MRFs that participated in the surveys, interviews, and site visits conducted by the contractor, categorized by region.

Table C-1: Surveyed Facility Types by Region (2025)

Region	Bay Area	Coastal	Mountain	Southern	Valley	Statewide
Single Stream	7	3	0	5	0	15
Dual Stream	3	0	0	0	2	5
Mixed	0	0	1	5	3	9
Other	2	3	0	1	1	7
Total	12	6	1	11	6	36

Table C-2 shows the permitted and actual throughput of facilities engaged through surveys, interviews, and site visits using data provided by the facilities and supplemented by SWIS data if survey information was not provided. Permitted throughput and actual throughput may represent multiple inbound material types.

Table C-2: Permitted and Actual Throughput (Facilities Engaged, 2024)

	Bay Area	Coastal	Mountain	Southern	Valley
Total Permitted Throughput (TPD)	17,538	5,070	370	24,590	6,580
Actual Throughput (TPD)	4,778	556	82	3,811	1,344

The facility sites range from as small as one acre up to 20 acres, hosting ancillary operations such as transfer and disposal operations, organics processing, fleet yards, fueling, and vehicle maintenance. The size of the facility buildings (including tip floor, processing, and bale storage) range from 6,000 square feet (sq ft) to 215,000 sq ft, depending on the operations and material storage requirements.

C-2. Summary of Inbound Material & Contamination

Table 3-20 in Section 3.2. summarizes the ranges of materials reported as contamination by six surveyed facilities that responded to this question in the survey.

The detailed composition of inbound material may not be collected on a regular basis by recycling processing facilities across the state, and only one facility provided inbound composition.

The contamination percentages can vary by weight depending on the type of collection program. For example, dual stream systems reported much lower overall contamination than single stream facilities. When interviewing facility operators, the contractor discussed trends they had observed related to inbound materials or contamination. Facility operators consistently identified a continued decline in newspaper and newsprint as inbound materials, while old corrugated cardboard (OCC) continues to steadily increase in residential material. Overall, paper tonnages are decreasing, but paper packaging is on the rise. Plastics, particularly film and molded plastics, are also becoming more prominent in the facility stream.

Table 3-19 in Section 3.2. shows the ranking of various contamination impacts on their facility, with 1 representing a high impact and 5 representing a low impact.

Based on the responses from surveyed facilities, the downtime at facilities (6 facilities indicating this is this highest impact) represents the most challenging impact of contamination, followed by contaminated commodities (5 facilities indicating this is second highest impact), lost revenue (7 facilities indicating this is third highest impact), worker injuries (6 facilities indicating this is fourth highest impact), and increased residue cost (5 facilities indicating this is lowest impact).

Facilities frequently identified plastics #3 through #7 as lacking end markets and causing challenges in selling as a baled commodity. Facilities noted that they are open to accepting #5 PP, but it is hard to target and separate on its own without optical sorting capabilities (e.g., manual picking by resin type is challenging at scale). MRF operators also repeatedly reported that film plastics, such as bags, wraps, and other thin flexible packaging, were problematic due to contamination issues, handling difficulties, and limited end markets.

In addition, operators consistently cited that some packaging types, including PET thermoforms (e.g., clamshells), expanded polystyrene, and aseptic cartons, do not have sustainable end markets. These items are difficult to process because of their design, contamination risk, or lack of consistent end markets. Although some facilities have been able to market these materials, end markets can vary on a regional basis.

The residue rate of facilities ranged from as low as 5% at manual and dual stream operations to as high as 45% in areas that have mixed waste processing facilities. Facilities indicated that process loss typically ranged between 5 to 10%(e.g., the amount of target material that was not captured by equipment as intended, separate from inbound contamination).

The cost of transporting and disposing residue was reported as low as \$15 per ton to as high as \$208 per ton. The variability was dependent on the ownership or contracting structure at the disposal facility and the size and location of the disposal site. For example, companies that own both a MRF and a nearby landfill will pay significantly less for disposing residue. Based on survey results, there is not a direct correlation

between rural sites and higher disposal fees. Additionally, transportation costs need to be accounted for and may be included in the disposal fee depending on the contracting structure.

The responses by MRFs indicate that there is strong acceptance of PET #1 bottles and jars, HDPE #2 bottles and jars, aluminum, tin/steel, OCC, kraft paper, paperboard, and mixed paper. Based on the discussion during interviews, the contractor identified these materials as the most marketable of the inbound material stream. Facilities are typically designed to effectively capture these materials and there are proven end markets for them.

Other types or formats of these materials have limited acceptance and are considered tolerable. These materials (e.g., PP rigids, aseptic cartons, gable-top cartons, small format items) are commonly delivered to facilities and do not cause challenges for operations but do require additional effort from manual sorters or equipment to separate and operators must devote bunker and bale storage area to manage. The markets for these materials yield a lower revenue, and it may be challenging to accumulate enough material to create full bales or enough bales to justify transportation to end markets.

Prohibited materials are identified as those that cause challenges for operators or cannot be processed effectively by sorting systems or have limited marketability (e.g., film plastic, waxed OCC, plastic-lined paper, multi-material laminates, glass, EPS #6, and PVC #3). These materials cannot be processed effectively by mechanical screens, manual sorters, or optical sorters and cause unplanned facility downtime due to wrapping or jamming.

Based on surveys and interviews conducted, several facilities indicated that MRF operators do not have plans to accept or process new material types at this time. Others noted that their willingness to expand is tied to the development of reliable and economically sustainable markets, suggesting that setting a guaranteed floor price for materials (e.g., \$0.07 to \$0.10 per pound) could change conditions and help them justify operational or facility adjustments to target material types. During interviews, facilities indicated if a stable market is available for material that is currently classified as contamination by a facility and is currently being sent out as residual, the facility would require more labor and space to accommodate the new recovery operation. A guaranteed floor price to support the additional labor to remove materials from residual stream would be required, at a minimum, to justify operational adjustment. A smaller number of facilities expressed a more proactive stance, either stating that they are open to accepting new materials as opportunities arise or identifying specific materials such as PP #5 and aseptic cartons as potential additions.

C-3. Summary of Outbound Material & Contamination

The contractor evaluated inbound materials by CMC processing group by referencing Tables C-2 and C-4 from the Appendix to the Current State of Collection Report. These tables provide the estimated tonnage collected in the solid waste and materials collected for recycling streams, for residential and commercial generators on a combined basis. The contractor estimated the tons of covered materials by CMC

category sent to mixed waste processing facilities using “California Landfills: Measuring Single Use Packaging and Plastic Food Service Ware Disposed (2025),” a CalRecycle landfill waste characterization study specifically designed to assess SB 54-related materials. Based on the estimated distribution of covered and non-covered materials in the statewide landfill stream, the same distribution was applied to the solid waste delivered for mixed waste processing. The covered materials were assumed to align with the material composition identified in the study characterization. The tons of covered materials sent to mixed waste processing were combined with tons of covered materials collected for recycling (Table C-4 from the Appendix to the Current State of Collection Report) to present total estimated inbound tons to recycling processing facilities in Table C-3 below. The estimated tonnages outbound from recycling processing facilities by CMC processing group is estimated by using RDRS outbound data supplemented by facility specific information from survey data for those entities that did not report. Table C-3 provides the estimated 2024 annual inbound and outbound tonnage for all recycling processing facilities by CMC processing group.

Table C-3: Estimated Material Inbound and Outbound from Recycling Processing Facilities by CMC Processing Group (Tons, 2024)^{1, 2}

CMC Processing Group	Inbound Tons	Outbound Tons
Plastic #1 – PET Clear Bottles, Jugs, Jars - Non CRV	35,959	20,144
Plastic #1 – PET Pigmented Bottles, Jugs, Jars – Non CRV	1,898	2,188
Plastic #1 – Other PET Rigid	25,819	5,530
Plastic #1 – PET Flexibles and Films	431	Unknown
Plastic #2 – HDPE (pigmented and natural) Bottles, Jugs, Jars – Non CRV	139,034	36,440
Plastic #2 – HDPE Pails and Buckets	2,829	9,648
Plastic #2 – Other HDPE Rigid	2,281	11,948
Plastic #2 – HDPE Flexibles and Films	6,410	16,960
Plastic #3 – PVC Rigid	751	0
Plastic #3 – PVC Flexibles and Films	814	0
Plastic #4 – LDPE Bottles and Jugs	399	0
Plastic #4 – Mono LDPE Flexibles and Films	119,316	Unknown

CMC Processing Group	Inbound Tons	Outbound Tons
Plastic #4 – Other LDPE Rigid	870	0
Plastic #5 – PP Rigid Items	42,154	15,792
Plastic #5 – Other PP	7,611	Unknown
Plastic #5 – Mono PP Flexibles and Films	18,881	Unknown
Plastic #6 – EPS Rigid Items	700	290
Plastic #6 – PS Rigid Items	3,377	894
Plastic #6 – Other PS	1,222	40
Plastic #6 – PS Flexibles and Films	502	Unknown
Plastic #7 – Other Rigid Plastics	49,092	2,556
Plastic #7 – Other Flexibles and Films	29,221	Unknown
Multi-Material Laminate	5,914	1,962
Plastics and Polymers Designed for Compostability - Flexibles and Films	87,438	0
Plastics and Polymers Designed for Compostability - Rigid Items	8,486	0
Small Format – Plastics	25,314	7,015
Plastic-Based Textiles	1,159	5,547
Plastic Subtotal	617,882	136,954
OCC	3,202,432	1,527,700
Waxed OCC	4,919	0
Kraft Paper	168,734	26,064
Paperboard	21,909	104,488
Mixed Papers	1,223,973	0
Molded Pulp	58,499	Unknown

CMC Processing Group	Inbound Tons	Outbound Tons
Aseptic Cartons	15,697	24
Gable-Top Cartons	27,147	94
Other Lined Paper	24,696	37,257
Small Format – Paper	631	Unknown
Paper and Fiber Subtotal	4,748,637	1,695,627
Aluminum Containers – Non-CRV	12,201	9,562
Other Aluminum	5,531	7,377
Other Nonferrous	136,353	0
Tin/Steel/Bimetal – Non-CRV	79,962	142,028
Other Ferrous	50,348	0
Small Format – Metal	610	0
Metal Subtotal	285,005	158,967
Mixed Glass Bottles and Jars – Non-CRV	93,029	69,650
Other Forms of Glass	32,437	Unknown
Small Format – Glass	647	Unknown
Glass Subtotal	126,113	69,650
Ceramic	52	0
Small Format – Ceramics	198	40
Ceramic Subtotal	250	40
Wood – Untreated	75,875	164
Wood – Treated	3,928	0
All Other Wood and Organics	241	0
All Other Textiles	287	0

CMC Processing Group	Inbound Tons	Outbound Tons
Small Format - Wood and Organics	441	0
Wood and Organic Subtotal	80,772	164
Total	5,858,659	2,061,404

¹ Because some values are unknown due to lack of available data, the total tons of estimated material inbound and outbound is at minimum what is included in this table; however, the contractor recognizes that it could be higher due to unknown data. The contractor identifies outbound tons as “unknown” where information was not available, and “0” tons where it was confirmed that there is no existing end market for recycling processing facilities via interested party engagement.

² Totals may not sum due to rounding.

The outbound total, containing only covered materials, is less than the inbound with disposed of tonnage (contamination and process loss) removed due to covered materials that may not be recovered from mixed waste processing and underreporting by MRFs in the RDRS dataset. For this reason, the contractor did not calculate tons disposed of by CMC processing group due to lack of available data and the varying methodologies utilized to calculate inbound and outbound tons.

The outbound tons from recycling processing facilities varies slightly from what is included in the Current State of End Markets Report. The following describes these differences:

- **Plastics:** Tons of covered material in the plastic material class sent outbound from MRFs is relatively similar to the amount of plastics estimated as accepted by or sent to end markets. Slight differences in the data may be due to material quantities included in RDRS and due to outbound bales potentially not being accepted into end markets.
- **Paper and Fiber:** Tons of covered material in the paper and fiber material class sent outbound from recycling processing facilities is less than estimated tons accepted by or sent to end markets potentially due to the amount of commercial material that is sent directly to end markets, bypassing recycling processing facilities.
- **Metal:** Tons of covered material in the metal material class sent outbound from recycling processing facilities is significantly higher than the estimated amount of metals accepted by or sent to end markets due to the differences in methodologies between the two reports. Both reports rely partially on RDRS data, however, the Current State of End Markets Report uses a more conservative approach to including RDRS data for metals.
- **Ceramic:** Tons of covered material in the ceramics material class sent outbound from recycling processing facilities are estimated to be minimal and no end markets were identified for this material based on interested party engagement.

- **Wood and Other Organic:** Tons of covered material in the wood and other organics material class sent outbound from recycling processing facilities are estimated to be minimal and limited end markets are identified for this material based on interested party engagement.

Contamination is also present in outbound commodities. The SB 343 Report provides relevant data about contamination in bales sent to end markets, which includes covered materials that end up in the wrong bale and residue in the bales. Contamination estimates have been stripped out of the numbers presented to reflect only CMC processing group materials.

Table C-4 summarizes the estimated weight of each material class, including fines and residuals, found in outbound metal commodities based on 2024 RDRS tonnage and the SB 343 Report data (see Appendix A-3.1.2). Based on this analysis, materials in the plastic material class are commonly not being properly sorted in the process and end up in the metal commodities, which are typically sorted last at recycling processing facility.

Table C-4: Summary of Estimated Tons of Material Classes in Outbound Metal Commodities (2024)¹

Material Class	Mixed Metal – Ferrous – Steel/Tin Cans	Mixed Metal – Small	Aluminum – Other	Aluminum – UBC ²	Mixed Metal – Non-ferrous	Total ³
Plastic	1,874	0	0	20,757	0	22,631
Paper	0	0	0	0	0	0
Metal	168,654	358	1,285	0	26,015	196,312
Glass	0	0	0	0	0	0
Ceramic	0	0	0	0	0	0
Fines and Residuals	3,748	58	64	0	578	4,448
Total	174,276	416	1,349	20,757	26,593	223,391

¹ Totals may not sum exactly due to rounding.

² Amount of UBC in metal category shows zero because all metal in that commodity is assumed to be CRV, thus not covered material.

³ These totals do not mirror the totals in Table 3-6 because this table includes both covered and noncovered. Noncovered materials include fines and residue, hazardous materials, and multi-use materials. The datasets between these two tables may also not match due to rounding.

Table C-5 summarizes the estimated weight of each material class, including fines and residuals, found in outbound glass commodities based on 2024 RDRS tonnage and the SB 343 Report data. Because secondary processing for glass is necessary, MRF glass exhibits relatively high levels of plastic, paper, and metal material classes. These materials are typically too small for the MRF sorting process and fall into the fines and

residuals with the MRF glass. Information about efforts to recover this material are described in Section 3.2.6.

Table C-5: Summary of Estimated Tons of Material Classes in Outbound Glass Commodities (2024)

Material Class	Mixed Glass	Glass – Brown/Amber	Glass – Clear/Flint	Glass – Emerald	Total²
Plastic	4,428	293	4,767	766	10,254
Paper	53,139	146	0	383	53,668
Metal	0	73	3,178	383	3,634
Glass	252,412	2,488	39,727	16,851	311,478
Ceramic	0	0	0	0	0
Fines and Residuals	88,566	0	0	0	88,566
Total	398,545	3,000	47,672	18,383	467,600

¹ Totals may not sum exactly due to rounding.

² These totals do not mirror the totals in Table 3-6 because this table includes both covered and noncovered. Noncovered materials include fines and residue, hazardous materials, and multi-use materials. The datasets between these two tables may also not match due to rounding.

Table C-6 summarizes the estimated weight of each material class, including fines and residuals, found in the outbound plastic commodities based on the 2024 RDRS tonnage and the SB 343 Report data. Paper materials classes are sometimes found in plastic commodities such as PET Bottles (CRV), Polypropylene #5, Mixed Plastic #3 through #7, and Mixed Rigid Plastics.

Table C-6: Summary of Estimated Tons of CMC Classes in Outbound Plastic Commodities (2024)¹

CMC Classes	PET Bottle (CRV)	PET Bottle & Container	HDPE Mixed Bottle & Container	Plastic #4 - Other LDPE Rigid	Poly-propylene #5	Expanded Polystyrene #6	Mixed Plastic #3-#7	Mixed Rigid Plastic	Plastic Film	Total ²
Plastic	22,048	36,575	35,491	0	4,705	277	4,123	46,405	3,514	153,138
Paper	596	0	0	0	214	0	302	510	0	1,622
Metal	0	0	0	0	0	0	0	0	0	0
Glass	0	0	0	0	0	0	0	0	0	0
Ceramic	0	0	0	0	0	0	50	0	0	50
Fines and Residuals	0	0	0	6,055	53	0	0	1,530	0	7,638
Total	22,644	36,575	35,491	6,055	4,972	277	4,475	48,445	3,514	162,448

¹ Totals may not sum exactly due to rounding.

² These totals do not mirror the totals in Table 3-6 because this table includes both covered and noncovered. Noncovered materials include fines and residue, hazardous materials, and multi-use materials. The datasets between these two tables may also not match due to rounding.

Table C-7 summarizes the estimated weight of each material class, including fines and residuals, found in the outbound paper commodities based on 2024 RDRS tonnage and the SB 343 Report data. Based on this analysis the plastic material class is commonly found in the ONP and Mixed Paper bales.

Table C-7: Summary of Estimated Tons of CMC Classes in Outbound Paper Commodities (2024)

CMC Classes	ONP and Mixed Paper	White Office Paper	Gable-Top & Aseptic Carton	OCC	Total
Plastic	17,890	0	0	0	17,890
Paper	518,801	24,995	91	1,502,341	2,046,228
Metal	0	0	0	0	0
Glass	0	0	0	0	0
Ceramic	0	0	0	0	0
Fines and Residuals	5,963	0	0	0	5,963
Total	542,654	24,995	91	1,502,341	2,070,081

C-4. Finances & Costs

The MRF Processing Survey requested information on various facility costs, including annual operating budget, capital costs, permitting costs, and staff costs. In many cases, facilities considered the data proprietary and did not share detailed information. However, some facilities did provide cost and revenue data. These data are shared as ranges to protect confidentiality of facilities. The following summarizes data that was received from survey respondents.

- Operating costs: 25% of surveyed facilities shared information about current operating costs. In general, operating costs include building and equipment maintenance, staffing, and equipment replacement. Reported annual operating costs ranged from \$2.8 to \$60.0 million, the lower end representing the manual facilities and the upper end representing the larger mixed waste processing and integrated facilities. Survey facilities indicated operating costs can vary significantly by facility based on age of facility, types of equipment used, type and quantity of inbound materials accepted, number of full-time employees (FTEs), labor unions, and other factors. Some facilities reported labor costs as high as \$23/hour as negotiated by labor unions.
- Labor requirements: The operational requirements of surveyed facilities may vary depending on the available equipment and facility size. Facility labor requires equipment operators, sorters, scale operators, maintenance, supervisors, and office/support staff. 45% of surveyed facilities indicated the number of FTEs

utilized to operate the facility, ranging from ten at smaller manual operations to 300 at larger mixed waste processing or integrated facilities.

- Capital costs: 55% of facilities surveyed provided information about capital costs. The surveyed facilities indicated that the capital costs for development of facilities ranged from \$2.1 to \$55 million. Surveyed facilities indicated that upgrades to buildings and equipment are generally expected to reduce manual sortation, reducing the number of sorters required and shifting some roles toward quality control activities. Capital upgrades that surveyed facilities are pursuing include rebuilding the existing facility; adding secondary processing capacity; increasing processing automation by adding optical sorters, robotic sorters, and AI software capabilities; and adding a metering bin to control burden depth. During interviews, surveyed facilities indicated that planned improvements could range from as low as \$500,000 for individual equipment installation to complete \$70 million overhauls.
- Commodity revenues: 10% of surveyed facilities provided information about scrap commodity revenues in grade categories as reported by MRFs. In 2024, the scrap value of material ranges from \$80/ton to \$115/ton for the blended ton of scrap material marketed. Table C-8 presents the range of pricing identified on a dollar per ton basis representing only scrap materials (e.g., not including CRV pricing). Where pricing is negative, the surveyed facility must pay to have this material removed from their facility. If only one response was provided for any material grade, the value is presented in the low column.

Table C-8: Commodity Revenues by Material Grade (2024, \$/ton)

Material Grade	Low	High
Plastic #1 PET - B	\$120	\$265
PET Film	\$0	Unknown
HDPE #2 - Color and Natural	\$40	\$980
HDPE #2 - Other	\$440	Unknown
Mixed Rigid Plastics	\$30	\$60
#5 PP	\$90	\$360
#5 PP - Other	\$5	Unknown
LDPE - B	\$140	Unknown
Mixed Glass	\$51	Unknown
Glass – Small Format	-\$3.5	Unknown
Aluminum	\$1,700	\$1,860
Tin/Steel	\$140	\$195

Material Grade	Low	High
Mixed Paper	\$45	\$60
OCC	\$80	\$155
Small format Paper	\$179	\$195

- Tipping fee revenues: Survey respondents were asked to report the tipping fees that they charge for various materials. Several facilities noted tipping fees as confidential and did not share tipping fee information. 15% of surveyed facilities shared tipping fee information. Tip fees also varied by inbound material and customer type. Tip fees ranged from \$46/ton to \$245/ton for materials collected for recycling and up to \$105/ton for mixed waste processing.
- Contamination costs: Surveyed facilities were asked to estimate the cost impacts of contamination on their operations. This can vary depending on the facility type because a mixed waste processing facility does not view contamination the same way as a single stream facility. Many materials accepted at a mixed waste processing facility are disposed of due to the nature of mixed waste stream, while a minority of material processed is disposed of at a single stream facility. Therefore, facility responses ranged widely. Smaller or dual stream facilities indicated contamination costs ranged between \$1,000 and \$5,000 per month, while larger MRFs and mixed waste processing facilities reported that contamination costs and overall disposal costs exceed \$50,000 per month. Contamination of inbound material of single stream facilities ranged between 15% to 45%, and the total amount sent for disposal included between five and 15% process loss depending on the level of automation. Less automated facilities processing dual stream at a lower TPH had less process loss while facilities with higher levels of automation, belt speed, and contamination had increased process loss. Most facilities surveyed reported that they charge additional fees for contaminated loads that are consistently delivered by specific routes, but no facilities indicated that they regularly reject loads.
- Residue disposal costs: Survey respondents were asked how much they are charged to dispose of residue. Reported residue costs ranged from \$15/ton to approximately \$208/ton. Vertically integrated facilities indicated that they internalize disposal costs due to co-location with a county owned landfill.
- Permitting costs: Survey respondents were asked how long it took to permit their facility and how much the permitting process cost. The time and cost to permits varied widely by facility and included factors such as the type of facility, requirements of one or more local enforcement agencies, and accepted material type. Some facilities reported that it took less than a year to permit their facility, while others reported that the permitting process took more than seven years. MRFs indicated on average facility construction took between one and two years.

Appendix D: Organic Processing Facility Survey Questions

The Organics Processing Facility Survey was provided to facilities as an electronic survey form. The survey shows the question list with survey logic identified in italics as applicable.

D-1. Introduction

HF&H Consultants, LLC (HF&H), contracted with HDR Engineering Inc. (HDR) on behalf of the California Department of Resources Recycling and Recovery (CalRecycle), to conduct a survey related to the Plastic Pollution Prevention and Packaging Producer Responsibility Act (Senate Bill 54, Allen, Chapter 75, Statutes of 2022) (the Act). The Act established a new extended producer responsibility (EPR) program to manage single-use packaging and plastic single-use food service ware (covered material) in California.

What is this survey and why participate?

HDR developed this survey to research the current and needed state of California's recycling and composting system for covered materials, including topics such as acceptance, contamination, and environmental and public health impacts.

Your responses are valued and critical because:

- Responses will directly inform understanding of current system functioning, gaps, challenges, opportunities for growth, and needed improvements.
- Producers of covered material, largely through the operation of a Producer Responsibility Organization (PRO), will implement plans and budgets designed to meet the law's requirements, including through the disbursement of funds to recycling system providers. Your responses will inform the PRO's plan and budget.
- Limited information exists about the collection system that is specific to covered material.

How do I participate?

Please complete one survey for each facility that you represent that processes single-use packaging or single-use plastic food service ware.

HDR acknowledges that facilities are required to report some of this information to CalRecycle; however, these questions intend to capture additional detail and place a more specific focus on SB 54. Data will not be used to assess compliance with SB 1383, AB 939, AB 1826, or any other regulations for which CalRecycle requires reporting.

HDR staff are available to answer questions at EPRNeedsAssessment@hdrinc.com. The survey can be completed in multiple sessions (i.e., your progress will be saved).

Please complete the survey by Thursday, July 3, 2025. We do understand this is a tight timeline and appreciate your effort in this manner. Participation is voluntary.

Please email EPRNeedsAssessment@hdrinc.com if you would like to put in place a non-disclosure agreement (NDA) before completing the survey.

Questions?

If you have any questions related to this survey or the work being conducted by HF&H, then please email EPRNeedsAssessment@hdrinc.com. If you have questions related to the broader implementation of the Act or the needs assessment, then please email CalRecycle at packaging@calrecycle.ca.gov.

D-2. Contact and General Information

Facility Name:

Facility Owner:

Facility Operator:

SWIS Number:

Facility Address:

Facility Contact Name:

Email:

Phone #:

Alternate Contact:

Please note: Once an email address is entered, you will have the ability to save your work and come back to the survey at a later time to complete it. Once you click "Save" at the bottom of the page, a link will be sent to the email you entered that can later be used to access and complete your survey. Remember to "Save" before you close out of the form.

If you have additional operations or facilities, please fill out another form specific to that activity or facility.

D-3. Facility Operations and Expansions

The following questions are intended to identify the type of services you provide and requests contact information to follow up for further clarifications.

1. What is the facility technology? (*Select all that apply*)
 - a. Anaerobic Digestion – High Solids
 - b. Anaerobic Digestion – Low Solids
 - c. In-Vessel Composting
 - d. Windrow Composting
 - e. Aerated Static Pile (ASP) Composting – Positive
 - f. Aerated Static Pile (ASP) Composting – Negative
 - g. Hybrid – Active Phase ASP, Curing Phase Windrow
 - h. Other:
2. How does your facility measure throughput? (*select one*)
 - a. Tons per year
 - i. *If A*, What is the facility's permitted throughput in tons per year?
 - ii. *If A*, What is the facility's designed throughput in tons per year, if different than permitted?
 - iii. *If A*, What is the actual tonnage processed annually?
 - b. Tons Onsite at Any Given Time
 - i. *If B*, What is the facility's permitted throughput in tons per day?
 - ii. *If B*, What is the facility's designed throughput in tons per day, if different than permitted?
 - iii. *If B*, What is the actual maximum quantity of material accepted per day in tons?
 - iv. *If B*, What is the average quantity of material accepted per day in tons?
 - c. Cubic Yards per Year
 - i. *If C*, What is the facility's permitted throughput in cubic yards per year?
 - ii. *If C*, What is the facility's designed throughput in cubic yards, if different than permitted?
 - iii. *If C*, What is the actual quantity (in cubic yards) processed annually?

- d. Cubic Yards Onsite at Any Given Time
 - i. *If D*, What is the facility's permitted throughput in cubic yards per day?
 - ii. *If D*, What is the facility's designed throughput in cubic yards per day, if different than permitted?
 - iii. *If D*, What is the maximum quantity of material accepted per day in cubic yards?
 - iv. *If D*, What is the average quantity of material accepted per day in cubic yards?
- 3. Provide the tip fees (including units) for the following customers:
 - a. Self-haul (residential):
 - b. Commercial collection vehicles:
 - c. Residential collection vehicles:
- 4. What is the total permitted acreage of the site?
 - a. < 2 acres
 - b. 2 – 5 acres
 - c. 6 – 10 acres
 - d. 11 – 20 acres
 - e. >20 acres
- 5. Which equipment types do you currently have onsite or plan to obtain in the next year? (*Select all that apply*)
 - a. Screen(s)
 - b. Grinder(s)
 - c. Scale(s)
 - d. Front end loader
 - e. Skid-steer
 - f. Roll-off truck
 - g. Windrow turner

- h. Depackager
 - i. Other:
6. Does your facility have any existing plans for expansion/upgrades/permit changes?
If so, please identify the following items (*Select all that apply*)
- a. Expansion of compost pad or otherwise increased permitted tonnage and/or design capacity
 - b. Constructing additional digesters
 - c. Upgrading technology
 - d. Construction of building
 - e. Additional pre-processing equipment
 - f. Additional processing equipment (windrow turner, front-end loader, or screener..)
 - g. Bagging/packaging equipment
 - h. Staffing increases
 - i. No plans
 - j. Other site improvements
 - 1. Please describe the upgrades/changes selected above (e.g., equipment types or purposes for new buildings.)
 - 2. Which of these upgrades/replacements is being made to process plastics and polymers designed for compostability? (*Select all that apply*)
 - k. Expansion of compost pad or otherwise increased permitted tonnage and/or design capacity
 - l. Constructing additional digesters
 - m. Upgrading technology
 - n. Construction of building
 - o. Additional processing equipment (windrow turner, front-end loader, screener, depackager)
 - i. If `(s) of equipment? (*Select all that apply*).
 - 1. Screen(s)
 - 2. Grinder(s)

3. Scale(s)
 4. Front end loader
 5. Skid-steer
 6. Roll-off truck
 7. Windrow turner
 8. Depackager
 9. Other:
- p. Staffing increases
- q. No plans
- r. Other site improvements:
7. Which of these upgrades/replacements is being made to process uncoated paper food service ware? (*Select all that apply*)
- a. Expansion of compost pad or otherwise increase capacity
 - b. Constructing additional digesters
 - c. Upgrading technology
 - d. Construction of building
 - e. Additional processing equipment (windrow turner, front-end loader, screener, depackager).
 - i. If selected, what kind(s) of equipment? (*Select all that apply*).
 1. Screen(s)
 2. Grinder(s)
 3. Scale(s)
 4. Front end loader
 5. Skid-steer
 6. Roll-off truck
 7. Windrow turner
 8. Depackager
 9. None

10. Other:

- f. Staffing increases
- g. Changes to permits
- h. None
- i. Other site improvements:

D-4. Feedstock

8. What is the mix of materials received (approx. percentage by weight) annually? Estimates are acceptable.
- a. % Green Material (i.e., grass clippings or leaves) =
 - b. % Mixed Green Material and Food Material
 - c. % Wood Material (i.e., branches, untreated wood) =
 - d. % Food Material =
 - e. % Vegetative Food Material
 - f. % Plastics and Polymers Designed for Compostability =
 - g. % Poly-coated paper food service ware =
 - h. % Uncoated paper food service ware =
 - i. % Residue Material =
 - j. % Other =
9. If your facility accepts packaging and paper products, are those material quantities tracked with food material, or tracked separately?
- a. Tracked with food material
 - b. Tracked separately
 - c. Not applicable
10. Please indicate the percentage by weight for feedstock received from residential, commercial, and other feedstock. Estimates are acceptable.
- a. % Residential =
 - b. % Commercial =
 - c. % Agricultural =

d. % Industrial (e.g., breweries, manufacturers) =

e. % Other =

11. Please indicate how you manage the following material types (select all that apply)

Green material

- a. Accept and incorporated into finished product
- b. Screen (before processing)
- c. Screen (after processing)
- d. Contaminant or incompatible material

Mixed green material and food material

- a. Accepted and incorporated into finished product
- b. Screened for disposal (before processing)
- c. Screened for disposal (after processing)
- d. Contaminant or incompatible material

Residential Food Material

- a. Accepted and incorporated into finished product
- b. Screened for disposal (before processing)
- c. Screened for disposal (after processing)
- d. Contaminant or incompatible material

Commercial Food Material

- a. Accepted and incorporated into finished product
- b. Screened for disposal (before processing)
- c. Screened for disposal (after processing)
- d. Contaminant or incompatible material

Industrial Food Material

- a. Accepted and incorporated into finished product
- b. Screened for disposal (before processing)
- c. Screened for disposal (after processing)

- d. Contaminant or incompatible material

Wood – Untreated

- a. Accepted and incorporated into finished product
- b. Screened for disposal (before processing)
- c. Screened for disposal (after processing)
- d. Contaminant or incompatible material

Small Format – Wood and Organic (e.g., small pieces of wood)

- a. Accepted and incorporated into finished product
- b. Screened for disposal (before processing)
- c. Screened for disposal (after processing)
- d. Contaminant or incompatible material

All Other Wood and Organics (describe)

12. Please indicate how you manage the following material types (select all that apply)

Molded Pulp (e.g. egg cartons, drink trays, take-out containers)

- a. Accept and incorporated into finished product
- b. Screen (before processing)
- c. Screen (after processing)
- d. Contaminant or incompatible material
- e. Planning to accept in the future
- f. Interested in accepting
- g. Not interested in accepting
- h. Unsure about accepting

Kraft Paper (e.g., paper bags)

- a. Accept and incorporated into finished product
- b. Screen (before processing)
- c. Screen (after processing)
- d. Contaminant or incompatible material
- e. Planning to accept in the future

- f. Interested in accepting
- g. Not interested in accepting
- h. Unsure about accepting

Mixed paper (e.g., soiled office paper)

- a. Accept and incorporated into finished product
- b. Screen (before processing)
- c. Screen (after processing)
- d. Contaminant or incompatible material
- e. Planning to accept in the future
- f. Interested in accepting
- g. Not interested in accepting
- h. Unsure about accepting

Cardboard / OCC (e.g., pizza boxes, cardboard boxes)

- a. Accept and incorporated into finished product
- b. Screen (before processing)
- c. Screen (after processing)
- d. Contaminant or incompatible material
- e. Planning to accept in the future
- f. Interested in accepting
- g. Not interested in accepting
- h. Unsure about accepting

Waxed Cardboard (e.g., produce boxes)

- a. Accept and incorporated into finished product
- b. Screen (before processing)
- c. Screen (after processing)
- d. Contaminant or incompatible material
- e. Planning to accept in the future

- f. Interested in accepting
- g. Not interested in accepting
- h. Unsure about accepting

Paperboard (e.g., cereal boxes)

- a. Accept and incorporated into finished product
- b. Screen (before processing)
- c. Screen (after processing)
- d. Contaminant or incompatible material
- e. Planning to accept in the future
- f. Interested in accepting
- g. Not interested in accepting
- h. Unsure about accepting

Small Format – Paper (e.g., shredded paper loose and/or bagged)

- a. Accept and incorporated into finished product
- b. Screen (before processing)
- c. Screen (after processing)
- d. Contaminant or incompatible material
- e. Planning to accept in the future
- f. Interested in accepting
- g. Not interested in accepting
- h. Unsure about accepting

Plastics and Polymers Designed for Compostability - Flexibles and Films (e.g., bags and liners)

- a. Accept and incorporated into finished product
- b. Screen (before processing)
- c. Screen (after processing)
- d. Contaminant or incompatible material
- e. Planning to accept in the future

- f. Interested in accepting
- g. Not interested in accepting
- h. Unsure about accepting

Plastics and Polymers Designed for Compostability - Rigid Items (e.g., plates, cups, containers, utensils, straws, coffee pods)

- a. Accept and incorporated into finished product
- b. Screen (before processing)
- c. Screen (after processing)
- d. Contaminant or incompatible material
- e. Planning to accept in the future
- f. Interested in accepting
- g. Not interested in accepting
- h. Unsure about accepting

Polycoated Paper Food Service Ware* (e.g., trays, plates, bowls, clamshells, lids, cups)

- a. Accept and incorporated into finished product
- b. Screen (before processing)
- c. Screen (after processing)
- d. Contaminant or incompatible material
- e. Planning to accept in the future
- f. Interested in accepting
- g. Not interested in accepting
- h. Unsure about accepting

Uncoated Paper Food Service Ware* (e.g., paper plates, bowls, clamshells)

- a. Accept and incorporated into finished product
- b. Screen (before processing)
- c. Screen (after processing)
- d. Contaminant or incompatible material

- e. Planning to accept in the future
- f. Interested in accepting
- g. Not interested in accepting
- h. Unsure about accepting

Other (please describe how these are managed)

***Food Service Ware:** *These products are covered by The Act and include plastic-coated paper or plastic-coated paperboard, paper or paperboard with plastic intentionally added during the manufacturing process. For purposes of this subparagraph, "single-use food service ware" includes the following: Trays, plates, bowls, clamshells, lids, cups, utensils, stirrers, hinged or lidded containers, and straws.*

13. If you consider plastics and polymers designed for compostability to be contaminants or incompatible materials, what would need to happen for your facility to consider accepting and processing these materials into finished compost or digestate? (Select all that apply)
- a. Funding for mobile equipment
 - i. If selected: Please identify which types of equipment and costs as available:
 - b. Funding for stationary equipment
 - i. If selected: Please identify which types of equipment and costs as available:
 - c. Funding for additional employees
 - d. Funding for capital improvements
 - i. If selected: Please identify what kind and costs as available:
 - e. Training on composting these products
 - f. Funding for education for residents or haulers
 - g. Feedstock contracts/guarantees
 - h. Separate incoming stream for these materials
 - i. More space
 - j. USDA NOP modified to allow compostable plastics and polymers as an acceptable compost feedstock for organic agriculture.
 - k. Other:

- l. Not interested in accepting these materials regardless of funding, training, or educational opportunities.
14. If you consider polycoated paper food service ware to be contaminants or incompatible materials, what would need to happen for your facility to consider accepting and processing these materials into finished compost or digestate? (Select all that apply)
- a. Funding for mobile equipment
 - i. If selected: Please identify which types of equipment and costs as available:
 - b. Funding for stationary equipment
 - i. If selected: Please identify which types of equipment and costs as available:
 - c. Funding for additional employees
 - d. Funding for capital improvements
 - i. If selected: Please identify what kind and costs as available:
 - e. Training on composting these products
 - f. Funding for education for residents or haulers
 - g. Feedstock contracts/guarantees
 - h. Separate incoming stream for these materials
 - i. More space
 - j. USDA NOP modified to allow compostable plastics and polymers as an acceptable compost feedstock for organic agriculture.
 - k. Other:
 - l. Not interested in accepting these materials regardless of funding, training, or educational opportunities.
15. If you consider molded pulp, kraft paper, mixed paper, OCC/cardboard, waxed OCC, paperboard, small format paper, or uncoated paper food service ware to be contaminants or incompatible materials, what would need to happen for your facility to consider accepting and processing these materials into finished compost or digestate? (Select all that apply)
- a. Funding for mobile equipment
 - i. If selected: Please identify which types of equipment and costs as available:

- b. Funding for stationary equipment
 - i. If selected: Please identify which types of equipment and costs as available:
- c. Funding for additional employees
- d. Funding for capital improvements
 - i. If selected: Please identify what kind and costs as available:
- e. Training on composting these products
- f. Funding for education for residents or haulers
- g. Feedstock contracts/guarantees
- h. Separate incoming stream for these materials
- i. More space
- j. USDA NOP modified to allow compostable plastics and polymers as an acceptable compost feedstock for organic agriculture.
- k. Other:
- l. Not interested in accepting these materials regardless of funding, training, or educational opportunities.

16. What percentage of your incoming loads need to be depackaged first? Estimates are acceptable.

- a. <10%
- b. 11% - 25%
- c. 26% - 50%
- d. 51% - 75%
- e. >75%

D-5. Service Area

17. From which of the following California Regions does your facility receive organic materials? (*Select all that apply*)

- a. Bay Area (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma)
- b. Coastal (Del Norte, Humboldt, Lake, Mendocino, Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz)

- c. Mountain (Alpine, Amador, Calaveras, El Dorado, Inyo, Lassen, Mariposa, Modoc, Mono, Nevada, Plumas, Sierra, Siskiyou, Trinity, Tuolumne)
- d. Southern (Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Ventura)
- e. Valley (Butte, Colusa, Fresno, Glenn, Kern, Kings, Madera, Merced, Placer, Sacramento, San Joaquin, Shasta, Stanislaus, Sutter, Tehama, Tulare, Yolo, Yuba)

18. Does your facility receive any feedstock generated from outside California? If so, please identify the material type and which state it is delivered from:

D-6. Product

19. Which outgoing commodities does your facility produce and market? (*Select all that apply*)

- a. Compost
- b. Wood Mulch
- c. Overs
- d. Energy – Electricity
- e. Energy – Heat
- f. Energy – Renewable Natural Gas
- g. Other:

20. For each of the outgoing commodities selected, are they provided to markets in-state or out-of-state?

- a. Compost (in-state / out-of-state / Not Applicable)
- b. Wood Mulch (in-state / out-of-state / Not Applicable)
- c. Overs (in-state / out-of-state / Not Applicable)
- d. Energy – Electricity (in-state / out-of-state / Not Applicable)
- e. Energy – Heat (in-state / out-of-state / Not Applicable)

- f. Energy – Renewable Natural Gas (in-state / out-of-state / Not Applicable)
 - g. Other (in-state / out-of-state / Not Applicable)
21. For each of the outgoing commodities selected, what is the average sales price per product type/material? Please include units (for example, price per ton or cubic yard). List N/A if you do not sell the commodity.
- a. Compost =
 - b. Mulch =
 - c. Overs =
 - d. Energy – Electricity =
 - e. Energy – Heat (in-state) =
 - f. Energy – Renewable Natural Gas =
 - g. Other =
22. For each outgoing commodities selected, please clarify how they are sold (does not apply to energy):
- a. Compost (bagged and sold at retail / bulk sales / Other)
 - b. Mulch (bagged and sold at retail / bulk sales / Other)
 - c. Overs (bagged and sold at retail / bulk sales / Other)
 - d. Other (bagged and sold at retail / bulk sales / Other)
 - e. None
23. Identify which certification is used for your end product(s): *(Select all that apply)*
- a. US Composting Council Seal of Testing Assurance
 - b. OMRI Listed – Organic Materials Review Institute
 - c. California Department of Food and Agriculture Organic Input Material Program Registration
 - d. Not applicable
 - e. Other:
24. If your facility is an anaerobic digestion facility, how is digestate managed *(Select all that apply)?*
- a. Sent to water treatment plant

- b. Land applied
- c. Sold
- d. Given away
- e. Not applicable
- f. Other

D-7. Contamination

25. Does your facility consider plastics and polymers designed for compostability (e.g., liners/bags, clamshells, cups, service ware) a contaminant or incompatible material?

- a. Yes
- b. No
- c. Unsure

26. Does your facility consider polycoated paper food service ware (e.g., take out containers, paper cups, trays) a contaminant or incompatible material?

- a. Yes
- b. No
- c. Unsure

27. Does your facility consider uncoated paper food service ware (e.g., take out containers, paper plates) a contaminant or incompatible material?

- a. Yes
- b. No
- c. Unsure

28. What are the estimated contamination rates of incoming **residential** material?

- a. <2%
- b. 2% - 10%
- c. 11% - 20%
- d. 21 - 30%
- e. 31 - 40%
- f. >40%

- g. Not sure
- h. Not applicable

29. What are the estimated contamination rates of incoming **commercial** material?

- a. <2%
- b. 2% - 10%
- c. 11% - 20%
- d. 21% - 30%
- e. 31% - 40%
- f. >40%
- g. Not sure
- h. Not applicable

30. What are the estimated contamination rates of incoming **agricultural** material?

- a. <2%
- b. 2% - 10%
- c. 11% - 20%
- d. 21% - 30%
- e. 31% - 40%
- f. >40%
- g. Not sure
- h. Not applicable

31. What are the estimated contamination rates of incoming **industrial** (e.g., breweries, manufacturers) material?

- a. <2%
- b. 2% - 10%
- c. 11% - 20%
- d. 21% - 30%
- e. 31% - 40%

- f. >40%
- g. Not sure
- h. Not applicable

32. Provide any composition data for each contaminant type (% by weight of total feedstock)

- a. % Dirty/wet paper products (if considered contaminant) =
- b. % Non-compostable plastics =
- c. % Plastics and Polymers Designed for Compostability (if considered contaminant) =
- d. % Glass =
- e. % Metals =
- f. % Trash =
- g. % Other =

33. Are there any common sources of rejected loads? (Select all that apply)

- a. Certain municipalities
- b. Specific industry:
- c. Drop-offs
- d. Single-family residential routes
- e. Multi-family and commercial routes
- f. None
- g. Other:

34. What are the impacts of contamination on your operation? (Select all that apply)

- a. Downtime
- b. Contaminated commodities
- c. Worker injuries
- d. Increased processing costs
- e. Increased residue disposal costs
- f. Increased challenges managing odor

- g. Loss of customers or lack of interest in end product
- h. None
- i. Other:

35. What are the estimated costs associated with dealing with contamination?

- a. <\$1,000 per month
- b. \$1,001 - \$5,000 per month
- c. \$5,001 - \$10,000 per month
- d. \$10,001 - \$50,000 per month
- e. >\$50,000 per month
- f. Not sure
- g. If A-E selected: Describe the types of costs and estimated cost breakdown.

36. When you sell your end product, does the buyer charge a contamination fee?

- a. Yes
- b. No
- c. Not sure

37. What are the impacts of contamination on your end product? *(Select all that apply)*

- a. Loss of certification
- b. Fines
- c. Reduced customer base for end product
- d. Other:

38. Has your facility ever been penalized for contamination?

- a. Yes
- b. No
- c. Not sure
- d. If Yes – Describe the penalty, including additional contamination charges, if applicable.

39. Does your facility charge a fee to the hauler/customer for bringing in contaminated loads?

- a. Yes
- b. No
- c. If Yes – What is the fee (per ton or per cubic yard)?

D-8. Residuals

40. What percent of your total material accepted is disposed of as residuals?

41. What is the cost for disposal of residue on a \$/ton basis?

42. Which disposal facility is residue hauled to?

D-9. Capital and Operational Costs

43. What is your annual operating budget?

44. What is your estimated Building Replacement/Repair Cost Fund as a percentage of your annual operating budget?

- a. <0.5%
- b. 0.5% - 1%
- c. 1% - 2%
- d. 2% - 3%
- e. 3% - 4%
- f. 4%-5%
- g. >5%

45. What is your Stationary Equipment Replacement Cost as a percentage of your annual operating budget?

- a. <0.5%
- b. 0.5% - 1%
- c. 1% - 2%
- d. 2% - 3%
- e. 3% - 4%
- f. 4%-5%
- g. >5%

46. What is your Mobile Equipment Replacement Cost as a percentage of your annual operating budget?

- a. <0.5%
- b. 0.5% - 1%
- c. 1% - 2%
- d. 2% - 3%
- e. 3% - 4%
- f. 4%-5%
- g. >5%

47. What were the overall Capital Costs at the time of development?

- a. Less than \$50,000
- b. \$50,000 – \$499,999
- c. \$500,000 - \$999,999
- d. \$1,000,000 – \$1,499,999
- e. \$1,500,000 - \$2,000,000
- f. Greater than \$2,000,000

48. What were the estimated building costs?

49. What is the cost for the land lease on a \$/year basis, if applicable?

50. If you own the land, how much do you pay annually in property taxes?

51. Please provide any available information related to the following annual costs:

- a. Building insurance =
- b. Property insurance =
- c. Fire alarm & Sprinkler maintenance =
- d. Site Security =
- e. New Gate/Fencing =
- f. Leasehold Improvements =
- g. Taxes =

52. Please identify any major improvements since original development (*provide description, year, cost*):

D-10. Permitting

53. How long did it take to get the facility permitted?

- a. < 3 months
- b. 3 months to 6 months
- c. 6 months to 1 year
- d. > 1 year
- e. > 2 years
- f. I need more information to answer

54. How much did it approximately cost to permit your facility?

55. What is your staff cost (hours and/or dollars) associated with reporting?

If you have any additional comments or feedback that you'd like to share, add it here.

Appendix E: Aggregated Organic Processing Facility Survey, Interview, and Site Visit Results

The following summarizes survey responses from OPFs received during the project. As discussed in Appendix A-4.2, outreach was conducted to include input and insight from a variety of interested parties located throughout the state. However, direct results from the survey are not necessarily representative of all OPFs in California. For example, the percentage of surveyed facilities that accept covered material may be higher than the percentage of all California facilities that accept these materials, as they were more likely to be identified for outreach and may have been more likely to participate in the survey compared to other facilities. Furthermore, the analysis was limited by the number of survey responses received and the level of detail provided regarding costs, capacity, and material acceptance. Facilities surveyed typically did not respond to every survey question, and in most cases, considered cost and revenue information proprietary. The survey results are instead anticipated to capture a range of responses from OPFs. While the body of this report includes major findings and insights captured during the project, detailed survey responses from the OPF survey, interviews, and site visits are summarized in this Appendix.

E-1. Summary of Organic Material Processing Facility Type, Capacity, & Service Area

Survey respondents reported that they use a variety of in-vessel and composting technologies to process organic CMC processing group materials, as shown in Table E-1. In some cases, facilities reported using multiple technology types at their site. The highest proportion of facilities reported that they use windrow composting, followed by aerated static pile (ASP) composting.

Table E-1: Technology Types Used by OPFs Surveyed (2025)

Technology Type	Number of Respondents ¹
In-Vessel Digestion - High Solids	6
In-Vessel Digestion - Low Solids	3
In-Vessel Composting	1
Windrow Composting	11
ASP Composting – Positive	8
ASP Composting - Negative	2
Hybrid - Active Phase ASP, Curing Phase Windrow	3

Surveyed facilities were asked to report which regions they accept organic materials from, as shown in Table E-2. The table shows the breakdown by facility type, with some facilities using in-vessel digestion technology, some using composting technology, and some with both operations. Many facilities only accept materials from the region that they are located in, but some facilities reported that they accept materials from multiple regions. None of the OPFs surveyed reported that they accept inbound material from outside of California.

Table E-2: Compost Inbound Material Region Acceptance Summary (Number of Facilities)

Regions	In-Vessel Digestion	Composting	Both
Bay Area	2	4	1
Coastal	1	4	1
Mountain	0	2	0
Southern	0	4	1
Valley	1	4	0

E-2. Summary of Relevant CMC Groupings

CMC processing groups that are never anticipated to be accepted or incorporated into a recycled organic product at OPFs (based on contractor experience at OPFs in

California) were not included in the survey and were instead assumed to be screened out. These materials are listed in Table E-3.

Table E-3: Materials that May Be Covered and Are Not Accepted by OPFs

Category ID	CMC Class	CMC Form	CMC Collection Grouping	CMC Processing Grouping
24_C1N	Ceramic	All Forms w/o plastic component	Ceramic	Ceramic
24_C1P	Ceramic	All Forms w/ plastic component	Ceramic	Ceramic
24_C2N	Ceramic	Small – Two or more sides measuring two inches or less w/o plastic component	Ceramic	Small Format - Ceramics
24_C2P	Ceramic	Small – Two or more sides measuring two inches or less w/ plastic component	Ceramic	Small Format - Ceramics
24_G1N	Glass	Bottles and Jars w/o plastic component	Glass	Mixed Glass Bottles and Jars - Non-CRV
24_G1P	Glass	Bottle and Jars w/ plastic component	Glass	Mixed Glass Bottles and Jars - Non-CRV
24_G2N	Glass	Other Forms w/o plastic component	Glass	Other Forms of Glass
24_G2P	Glass	Other Forms w/ plastic component	Glass	Other Forms of Glass

Category ID	CMC Class	CMC Form	CMC Collection Grouping	CMC Processing Grouping
24_G3N	Glass	Small – Two or more sides measuring two inches or less w/o plastic component	Glass	Small Format - Glass
24_G3P	Glass	Small – Two or more sides measuring two inches or less w/ plastic component	Glass	Small Format - Glass
24_M10N	Metal	All Forms w/o plastic component	Other Ferrous	Other Ferrous
24_M10P	Metal	All Forms w/ plastic component	Other Ferrous	Other Ferrous
24_M12N	Metal	Small – Two or more sides measuring two inches or less w/o plastic component	Other Metal	Small Format - Metal
24_M12P	Metal	Small – Two or more sides measuring two inches or less w/ plastic component	Other Metal	Small Format - Metal
24_M1N	Metal	Non-aerosol container w/o plastic component	Aluminum	Aluminum Containers - Non-CRV

Category ID	CMC Class	CMC Form	CMC Collection Grouping	CMC Processing Grouping
24_M1P	Metal	Non-aerosol container w/ plastic component	Aluminum	Aluminum Containers - Non-CRV
24_M2N	Metal	Foil sheets w/o a plastic component	Aluminum	Other Aluminum
24_M2P	Metal	Foil sheets w/ a plastic component	Aluminum	Other Aluminum
24_M3N	Metal	Foil Molded Containers w/o plastic component	Aluminum	Other Aluminum
24_M3P	Metal	Foil Molded Containers w/ plastic component	Aluminum	Other Aluminum
24_M4P	Metal	Aerosol can w/ plastic component	Aluminum	Aluminum Containers - Non-CRV
24_M5N	Metal	Other Forms w/o plastic component	Aluminum	Other Aluminum
24_M5P	Metal	Other Forms w/ plastic component	Aluminum	Other Aluminum
24_M6N	Metal	Non-aerosol container w/o plastic component	Tin/Steel/Bimetal	Tin/Steel/Bimetal - Non-CRV

Category ID	CMC Class	CMC Form	CMC Collection Grouping	CMC Processing Grouping
24_M6P	Metal	Non-aerosol container w/ plastic component	Tin/Steel/Bimetal	Tin/Steel/Bimetal - Non-CRV
24_M7P	Metal	Aerosol can w/ plastic component	Tin/Steel/Bimetal	Tin/Steel/Bimetal - Non-CRV
24_M8N	Metal	Other Forms w/o plastic component	Tin/Steel/Bimetal	Tin/Steel/Bimetal - Non-CRV
24_M8P	Metal	Other Forms w/ plastic component	Tin/Steel/Bimetal	Tin/Steel/Bimetal - Non-CRV
24_M9N	Metal	All Forms w/o plastic component	Other Nonferrous	Other Nonferrous
24_M9P	Metal	All Forms w/ plastic component	Other Nonferrous	Other Nonferrous
24_P10P	Plastic	HDPE Flexible and Film Items	Flexible and Film Plastic	Plastic #2 - HDPE Flexibles and Films
24_P11P	Plastic	PVC Rigid Items	Plastic #3 - PVC Rigid	Plastic #3 - PVC Rigid
24_P12P	Plastic	PVC Flexible and Film Items	Flexible and Film Plastic	Plastic #3 - PVC Flexibles and Films
24_P13P	Plastic	LDPE Bottles, Jugs and Jars	Plastic #4 - LDPE Rigid	Plastic #4 - LDPE Bottles and Jugs
24_P14P	Plastic	LDPE Other Rigid Items	Plastic #4 - LDPE Rigid	Plastic #4 - Other LDPE Rigid
24_P15P	Plastic	LDPE Clear Non-Bag Film	Flexible and Film Plastic	Plastic #4 - Mono LDPE Flexibles and Films

Category ID	CMC Class	CMC Form	CMC Collection Grouping	CMC Processing Grouping
24_P16P	Plastic	LDPE Other Flexible and Film Items	Flexible and Film Plastic	Plastic #4 - Mono LDPE Flexibles and Films
24_P17P	Plastic	PP Bottles, Jugs and Jars	Plastic #5 - PP Rigid	Plastic #5 - PP Rigid Items
24_P19P	Plastic	PP Utensils	Plastic #5 - PP Rigid	Plastic #5 - Other PP
24_P1P	Plastic	PET Bottles, Jugs, and Jars (Clear/Natural)	Plastic #1 - PET Rigid	Plastic #1 - PET Clear Bottles, Jugs, Jars - Non CRV
24_P20P	Plastic	PP Other Rigid Items	Plastic #5 - PP Rigid	Plastic #5 - PP Rigid Items
24_P21P	Plastic	PP Clear Non-Bag Film	Flexible and Film Plastic	Plastic #5 - Mono PP Flexibles and Films
24_P22P	Plastic	PP Other Flexible and Film Items	Flexible and Film Plastic	Plastic #5 - Mono PP Flexibles and Films
24_P23P	Plastic	PS Expanded/ Foamed Hinged Containers, Plates, Cups, Tubs, Trays, and Other Foamed Containers	Plastic #6 - Expanded or Foamed Plastic, Rigid	Plastic #6 - EPS Rigid Items
24_P27P	Plastic	PS Utensils	Plastic #6 - PS Rigid	Plastic #6 - Other PS
24_P29P	Plastic	PS Flexible and Film Items	Flexible and Film Plastic	Plastic #6 - PS Flexibles and Films

Category ID	CMC Class	CMC Form	CMC Collection Grouping	CMC Processing Grouping
24_P2P	Plastic	PET Bottles, Jugs, and Jars (Pigmented/ Color)	Plastic #1 - PET Rigid	Plastic #1 - PET Pigmented Bottles, Jugs, Jars - Non CRV
24_P33P	Plastic	Other Forms	Other Multi-Material Laminate	Multi-Material Laminate
24_P34P	Plastic	Textiles	Other Mixed Plastics	Plastic-based Textiles
24_P35P	Plastic	Rigid Items	Other Mixed Plastics	Plastic #7 - Other Rigid Plastics
24_P36P	Plastic	Flexible and Film Items	Flexible and Film Plastic	Plastic - #7 Other Flexible and Films
24_P38P	Plastic	PET Other Rigid Containers, Cups, Lids, Plates, Trays, Tubs	Plastic #1 - PET Rigid	Plastic #1 - Other PET Rigid
24_P39P	Plastic	PET Other Rigid Items	Plastic #1 - PET Rigid	Plastic #1 - Other PET Rigid
24_P40P	Plastic	HDPE Other Rigid Items	Plastic #2 - HDPE Rigid	Plastic #2 - Other HDPE Rigid
24_P41P	Plastic	PP Other Rigid Containers, Cups, Lids, Plates, Trays, Tubs	Plastic #5 - PP Rigid	Plastic #5 - PP Rigid Items
24_P42P	Plastic	PS Other Expanded/ Foamed Forms	Plastic #6 - Other Expanded or Foamed Plastic	Plastic #6 - EPS Rigid Items

Category ID	CMC Class	CMC Form	CMC Collection Grouping	CMC Processing Grouping
24_P43P	Plastic	PS Solid Hinged Containers, Plates, Cups, Tubs, Trays, and Other Solid Forms	Plastic #6 - PS Rigid	Plastic #6 - PS Rigid Items
24_P46P	Plastic	Pouches and Envelopes	Plastic Pouches and Envelopes	Multi-Material Laminate
24_P47P	Plastic	Small – Two or more sides measuring two inches or less	Other Mixed Plastics	Small Format - Plastics
24_P5P	Plastic	PET Flexible and Film Items	Flexible and Film Plastic	Plastic #1 - PET Flexibles and Films
24_P6P	Plastic	HDPE Bottles, Jugs and Jars (Clear/Natural)	Plastic #2 - HDPE Rigid	Plastic #2 – HDPE (pigmented and natural) Bottles, Jugs, Jars - Non CRV
24_P7P	Plastic	HDPE Bottles, Jugs and Jars (Pigmented/ Color)	Plastic #2 - HDPE Rigid	Plastic #2 – HDPE (pigmented and natural) Bottles, Jugs, Jars - Non CRV
24_P8P	Plastic	HDPE Pails & Buckets	Plastic #2 - HDPE Rigid	Plastic #2 - HDPE Pails and Buckets
24_PF15P	Paper and Fiber	Aseptic Cartons	Aseptic Cartons	Aseptic Cartons
24_PF5P	Paper and Fiber	Gable-top Cartons	Gable top Cartons	Gable-Top Cartons

Category ID	CMC Class	CMC Form	CMC Collection Grouping	CMC Processing Grouping
24_PF7P	Paper and Fiber	Other Multi-Material Laminate Forms w/ plastic component	Mixed Paper	Other Lined Paper
24_WO2N	Wood and Other Organic Materials	All Treated or Painted Forms w/o plastic component	Wood - Treated	Wood - Treated
24_WO2P	Wood and Other Organic Materials	All Treated or Painted Forms w/ plastic component	Wood - Treated	Wood - Treated
24_WO3N	Wood and Other Organic Materials	Textiles w/o plastic component	Textiles	All Other Textiles
24_WO3P	Wood and Other Organic Materials	Textiles w/ plastic component	Textiles	All Other Textiles
24_WO4N	Wood and Other Organic Materials	Other Forms w/o plastic component	Other Mixed Organic	All Other Wood and Organics
24_WO4P	Wood and Other Organic Materials	Other Forms w/ plastic component	Other Mixed Organic	All Other Wood and Organics

Category ID	CMC Class	CMC Form	CMC Collection Grouping	CMC Processing Grouping
24_WO6P	Wood and Other Organic Materials	Small – Two or more sides measuring two inches or less w/ plastic component	Other Mixed Organic	Small Format - Wood and Organics

E-3. Summary of Inbound Materials & Contamination

Facilities accept material from commercial, residential, agricultural, and industrial sources. Surveyed facilities were asked to report the percentage of their inbound material that is obtained from residential, commercial, agricultural, and industrial (e.g., breweries, or manufacturers) sources. Results varied widely; some facilities accept organic material only from residential customers, while some only accept material from commercial customers. Surveyed facilities primarily accept residential materials, as shown in Table E-4. Based on survey responses, facilities utilizing anaerobic digestion technologies generally accept a higher proportion of commercial organic waste, reflecting the capacity of these systems to efficiently process food waste and high-moisture materials commonly generated by commercial establishments. Conversely, facilities employing windrow and aerated static pile (ASP) composting methods tend to focus more on residential green waste. These trends suggest that technology selection is aligned with the characteristics and sources of the organic materials processed.

Table E-4: Material Sources Accepted at Surveyed OPFs

Customer Type	Average of Responses (% of Incoming Organic Material by Customer Type)	Number of Compost Facilities Accepting Feedstock from Customer Type ¹	Number of In-Vessel Digestion Facilities Accepting Feedstock from Customer Type	Number of Facilities with Compost and In-Vessel Technologies Accepting Feedstock from Customer Type
Residential	65%	11	3	1
Commercial	32%	10	3	0
Agricultural	2%	4	0	0
Industrial	1%	2	1	0

Surveyed facilities were asked whether they were planning to accept CMC processing groups in the future. Some facilities currently accept these material types, as shown in Table E-5. More facilities are willing to accept paper- and fiber-based materials

compared to plastics and polymers designed for compostability. In general, in-vessel digestion facilities were more likely than composting facilities to accept plastic materials designed for compostability. While untreated wood is accepted and incorporated into a finished product, it is typically chipped or ground into end products like mulch or animal bedding rather than being incorporated into the composting or in-vessel digestion process.

Table E-5: Interest in Accepting CMC Processing Groups in the Future¹

CMC Processing Group	Currently Accept and Incorporate into Finished Product	Interested in Accepting	Not Interested in Accepting	Unsure About Accepting	Total Number of Respondents²
Plastics and Polymers Designed for Compostability – Flexibles and Films	4	0	11	2	20
Plastics and Polymers Designed for Compostability – Rigid Items	1	0	12	1	19
Paper and fiber or paperboard with a plastic coating or lining	2	1	9	2	19
Molded Pulp	9	0	5	1	18
Kraft Paper	10	0	6	0	18
Mixed Paper	6	0	8	1	17
Cardboard/OCC	8	0	6	2	18
Waxed Cardboard	2	1	9	2	19
Paperboard	4	1	7	2	19
Small Format – Paper	5	0	8	3	16
Untreated Wood	12	0	0	0	16
Small Format – Wood	11	0	0	0	15

¹ Respondents also had the option to select “screen (before processing),” “screen (after processing),” “contaminant or incompatible material,” and “planning to accept in the

future.” Responses that are not included in this table are discussed in the body of this report. The surveyed facilities did not select “planning to accept in the future” for any CMC processing group.

² Respondents had the option to select multiple responses to this question, and therefore the number of respondents for each answer does not necessarily sum to the total number of facilities that responded to the question.

Surveyed facilities were asked to report the composition of their inbound material streams. The most abundant material types received were green material, mixed green material and food material, food material, and “other,” as shown in Table E-6. The facilities had the option to write-in the “Other” category, and reported the following responses:

- Cardboard.
- Organics derived from MSW.
- Grease.
- Manures.
- Industrial food by-products.

Table E-6: Inbound Material Composition of Surveyed Facilities^{1,2}

Material Type	Average of Responses (% of Inbound Material)
Green Material (i.e., grass clippings or leaves)	42%
Mixed Green Material and Food Material	22%
Wood Material (i.e., branches, untreated wood)	5%
Food Material	9%
Vegetative Food Material	2%
Plastics and Polymers Designed for Compostability	1%
Poly-Coated Paper Food Service Ware	0.15%
Uncoated Paper Food Service Ware	0.03%
Residue Material	2%
Other	16%

¹ Respondents were asked to list the composition of their incoming feedstock. The average was compared based on responses from facilities and did not account for facility size.

² 17 facilities responded to the survey question regarding inbound material composition.

The OPF Survey also included questions regarding contamination to assess the impacts of contamination on facility operations. Facilities reported varying levels of contamination, typically ranging from less than 2% to 40% contamination. Estimated

contamination rates for residential material were typically higher than estimated contamination rates for commercial, agricultural, and industrial material. However, one facility estimated that contamination rates from incoming industrial material are higher than 40%. Three surveyed facilities shared information on contaminant composition; these facilities mentioned that plastics, glass, metals, and mixed waste streams were received as contaminants.

E-4. Costs

The OPF Survey requested information on various facility costs, including annual operating budget, capital costs, building costs, land lease cost, annual property taxes, permitting costs, and staff costs. In many cases, facilities considered the data proprietary and did not share it for this effort. However, some facilities did provide cost and revenue data. These data are shared as ranges to protect confidentiality of facilities. The following summarizes the current state based on data that were received from survey respondents.

- **Operating costs:** 30% of surveyed facilities shared information about current operating costs. In general, operating costs include building and equipment maintenance, staffing, and equipment replacement. Reported annual operating costs ranged from \$750,000 (for an in-vessel digestion system) to \$15 million (for a windrow and ASP composting operation). Operating costs are anticipated to vary significantly by facility based on age of facility, types of equipment used, type and quantity of inbound materials accepted, number of FTEs, and other factors.
- **Capital costs:** 30% of facilities surveyed provided information about capital costs. Facilities were given a range of options to choose from. The surveyed facilities that provided information on capital costs all reported that capital costs exceeded \$2 million. Only 20% of facilities reported their building costs, which ranged from \$2.5 to \$35 million. Facilities that reported their data also stated that building replacement/repair fund was less than 5% of annual operating budget, stationary equipment replacements were less than 5% of budget, and mobile equipment replacement was <0.5% of their budget.
- **Commodity revenues:** 25% of facilities provided information on revenues from commodities. The price of compost ranged from \$5 to \$20 per cubic yard, with an average of \$12 per cubic yard. The price for mulch ranged from \$5 to \$15 per cubic yard. For anaerobic digestion facilities, reported revenues on digestate ranged from \$50,000 to \$2 million annually. Some compost facilities elect to give away compost products to community members or use it in public works projects.
- **Tipping fee revenues:** Survey respondents were asked to report the tipping fees that they charge for various material and customer types. Several facilities noted tipping fees as confidential and did not share tipping fee information. 40% of surveyed facilities shared tipping fee information. Tip fees also varied by inbound material and customer type. Tip fees ranged from \$40/ton for materials like clean

cardboard to \$250/ton for materials like highly contaminated or hard to process materials (e.g., mixed organics).

- **Contamination costs:** Surveyed facilities were asked to estimate the cost impacts of contamination on their operations. Most facilities reported that they were not sure or did not provide specific estimates. However, one facility reported contamination costs between \$1,000 and \$5,000 per month, citing expenses related to staff time for removing contaminants and equipment repairs. Another facility indicated that contamination costs exceed \$50,000 per month, reflecting significant operational impacts. Residual material was estimated to have a 20% contamination rate, which contributes to increased processing and disposal costs. Most facilities surveyed reported that they charge additional fees for contaminated loads. One facility reported that when it rejects contaminated materials, it still charges the standard tipping fee to account for staff time associated with rejecting the contaminated load.
- **Residue disposal costs:** Survey respondents were asked how much they are charged to dispose of residue. Reported residue costs ranged from approximately \$40/ton to approximately \$92/ton. Two facilities reported that they absorb the disposal costs internally due to co-location with a county-owned landfill.
- **Permitting costs:** Survey respondents were asked how long it took to permit their facility and how much the permitting process cost. The time and cost to permit OPFs varied by facility. Some facilities reported that it took less than a year to permit their facility, while others reported that the permitting process took more than four years. Estimated costs to permit OPFs ranged from \$10,000 up to \$2M depending on local regulations and project scope and complexity.

Appendix F: Community Recycling and Composting Survey Questions

F-1. Community Based Organizations, Environmental Justice Groups and Tribe Survey

The Community Recycling and Composting Survey was provided to CBOs, EJ Groups and Tribes as an online survey form. The Tribes received a different survey with three questions removed and a modification to the introduction, all noted next to the change. The survey shows the question list with associated logic in italics where relevant.

F-2. Introduction

HF&H Consultants, LLC (HF&H), on behalf of the California Department of Resources Recycling and Recovery (CalRecycle), **requests your participation in a survey** related to a new law established to cut down on single-use packaging and plastic single-use food service ware, improve the recycling and composting of such materials, and mitigate the impacts of plastic pollution in California. Learn more about the [Plastic Pollution Prevention and Packaging Producer Responsibility Act](#) on CalRecycle's webpage.

What is this survey and why participate?

As part of a statewide needs assessment, CalRecycle is researching needed changes to the recycling system in a way that minimizes public health and environmental impacts and maximizes community benefits. This survey was created to hear directly from communities about their perspectives, experiences, and ideas for improving recycling and composting in California.

Your responses are valued and critical because:

- CalRecycle wants to ensure the needs assessment reflects the diverse challenges and perspectives of California communities impacted by plastic pollution and the recycling system.
- Changes identified in this needs assessment must be considered by industry as they implement and fund improvements to meet the law's requirements.

Compensation may be provided to community participants for providing their expertise and knowledge through completion of the survey. For more information on compensation, please email EPRNeedsAssessment@hdrinc.com.

Change for Tribe Survey

Your responses are valued and critical because:

- CalRecycle acknowledges the longstanding environmental stewardship of Tribal nations and is committed to ensuring that this needs assessment

reflects the unique challenges, priorities, and knowledge of Tribal communities.

- Changes identified in this needs assessment must be considered by industry as they implement and fund improvements to meet the law's requirements, including those that may affect Tribal communities.

Compensation may be provided to Tribal participants for providing their expertise and knowledge through completion of the survey. For more information on compensation, please email EPRNeedsAssessment@hdrinc.com.

Will my responses be confidential?

All information shared through this survey will be treated confidentially by HF&H. Responses will be aggregated before sharing data with CalRecycle or presenting data in published reports.

How do I participate?

Please complete the survey by August 1, 2025. We do understand this is a tight timeline and appreciate your effort in this manner. Participation is voluntary.

HF&H staff are available to answer questions at EPRNeedsAssessment@hdrinc.com. The survey can be completed in multiple sessions (i.e., your progress will be saved).

Questions?

If you have any questions related to this survey or the work being conducted by HF&H, then please email EPRNeedsAssessment@hdrinc.com. If you have questions related to the broader implementation of the Act or the needs assessment, then please email CalRecycle at packaging@calrecycle.ca.gov.

F-3. Contact and General Information

1. Name (First name and Last name)
2. Phone Number
3. Email Address
4. Name of Organization/California Native American Tribe
5. Please enter your 5-digit ZIP code

F-4. Demographic Questions

The following questions help us understand who is participating. Your responses are completely optional and confidential. You may skip any question in this section.

1. What is your date of birth?
2. Which best describes your type of residence or living situation?
 - a. Single-family home
 - b. Apartment or condominium

- c. Townhouse or duplex
 - d. Mobile home
 - e. Unhoused
 - f. Other [If you selected "Other" please explain.]
3. Which of the following best describes your current annual household income?
- a. Less than \$25,000
 - b. \$25,000 to \$49,999
 - c. \$50,000 to \$74,999
 - d. \$75,000 to \$99,999
 - e. \$100,000 to \$149,999
 - f. \$150,000 to \$199,999
 - g. \$200,000+
4. What is your race and/or ethnicity? Please select all that apply.
- a. White
 - b. Hispanic or Latino
 - c. Black or African American
 - d. Asian
 - e. American Indian or Alaska Native
 - f. Middle Eastern or North African
 - g. Native Hawaiian or Pacific Islander
 - h. Prefer not to answer [*Because you selected "Prefer not to answer" no other responses to this question will be recorded.*]

(QUESTION #3 AND #4 NOT INCLUDED IN ADAPTATION OF SURVEY FOR TRIBES)

F-5. Community Information

5. How would you describe the community you live in?
- a. Rural (Low population density, distant from urban centers)
 - b. Suburban (Primarily residential, outside of urban centers)
 - c. Urban (High population density, within city limits)
6. Which language(s) are spoken in your community? Please select all that apply.
- a. English
 - b. Spanish
 - c. Cantonese
 - d. Mandarin
 - e. Vietnamese
 - f. Tagalog
 - g. Korean
 - h. Armenian
 - i. Farsi

- j. Arabic
- k. Russian
- l. Japanese
- m. Punjabi
- n. Khmer
- o. One or more languages of California Native American Tribes
- p. Other [If you selected "Other" please explain.]

(QUESTION #6 NOT INCLUDED IN ADAPTATION OF SURVEY FOR TRIBES)

7. Do you feel concerned about how the following environmental issues impact your community or neighborhood?

Impact	Yes	No	Unsure
Water quality and contamination			
Neighborhood cleanliness			
Air pollution from traffic or industry			
Soil contamination			
Lack of plants and animals			
Neighborhood safety			

8. Have you and/or your community been impacted by the following challenges with waste management?

Impact	Yes	Somewhat	No	Unsure
Illegal dumping				
Littering				
Unreliable waste collection schedule				
Loss of waste management service providers				
Sharps/needles disposed of unsafely (littered, or not in sharps containers)				

9. Have you and/or your community been financially impacted by the waste management impacts above?

- a. Yes
- b. Somewhat
- c. No
- d. Unsure

10. In the last 6 months, have local organizations or your municipality hosted events in your community around environmental education and waste management/disposal?
- Yes
 - No
 - Unsure

F-6. General Awareness

Packaging makes up over 50 percent of what we dump in California landfills by volume. Senate Bill 54 (SB 54 or the “Plastic Pollution Prevention and Packaging Producer Responsibility Act”) was signed into law in June 2022 to reduce single-use packaging and plastic food service ware. By 2032, the state of California will:

- Cut 25 percent of single-use plastic packaging and food ware
- Recycle 65 percent of single-use plastic packaging and food service ware
- Ensure 100 percent of single-use packaging and plastic food service ware sold in the state of California is recyclable or compostable

11. Before this survey, what was your knowledge of SB 54?

- No prior knowledge of SB 54
- Heard of SB 54 but unsure what it’s about
- Familiar with SB 54 and its goals
- Knowledgeable about SB 54
- Supporting SB 54 goals

12. Do you feel knowledgeable and/or concerned about potential impacts of single-use packaging and plastic waste on the environment and public health?

Concern / Knowledge	Yes	Somewhat	No	Unsure
Knowledgeable about potential impacts				
Concerned about potential impacts				

F-7. Access and Equity

Feeling motivated to recycle and compost is unique for every California resident. CalRecycle wants to understand what makes it easy or hard for you to access and participate in recycling and composting programs.

13. How often do you make an effort to use **COMPOSTING** containers that are available?

Location of Effort	Not available	None of the time	Some of the time	Most of the time	All of the time
At home					
At work/school					
In public					

14. How often do you make an effort to use **RECYCLING** containers that are available?

Location of Effort	Not available	None of the time	Some of the time	Most of the time	All of the time
At home					
At work/school					
In public					

15. Where do you find **RECYCLING** and **COMPOSTING** most easily accessible?
Please select all that apply.

Access to	At home	At work/school	In public	Not accessible
Recycling				
Composting				

16. Which other recycling programs do you use in addition to curbside collection programs, if any? Please select all that apply.

- a. Bottle CRV recycling centers
- b. Metal recycling centers
- c. Collection containers at retail stores
- d. Mail back programs
- e. Specialized home pick-up
- f. Drop-off sites
- g. Composting at home or through community programs
- h. None of the above [*Because you selected "None of the above" no other responses to this question will be recorded.*]

17. What would make it easier for you to participate in CURBSIDE recycling and composting collection programs? Please select all that apply.

- a. New curbside collection programs made available in my area
- b. Additional materials accepted by the programs available in my area, if any
- c. Reduced cost
- d. Additional or clearer information on what to recycle and compost

- e. Trainings conducted by local jurisdictions, service providers, or other entities
 - f. Having more containers or more convenient access to containers
 - g. Verification that my items are being recycled/composted
 - h. Clearer labels on collection containers
 - i. Clearer labels on packaging
 - j. None of the above [*Because you selected "None of the above" no other responses to this question will be recorded.*]
18. What would make it easier for you to participate in NON-CURBSIDE collection programs? Please select all that apply.
- a. Availability of free or low-cost alternatives to paying fees at a drop-off center
 - b. More locations within a short distance from home (less than a 5-minute drive)
 - c. More locations within walking distance from home (less than a 10-minute walk)
 - d. Home pickup services
 - e. Mail back programs
 - f. Locations in commonly visited places
 - g. None of the above [*Because you selected "None of the above" no other responses to this question will be recorded.*]
19. How motivated are you by the following reasons to participate in recycling programs?

Impacts to Recycling	Not at all motivated	Slightly motivated	Somewhat motivated	Very motivated
To reduce greenhouse gas emissions (GHGs) and protect the environment				
To reduce waste overall, litter and dumping in my neighborhood				
To improve public health and safety				
To do the right thing				
To make the world better for future generations				
To follow the leadership of influential people/organizations				
To avoid penalties from mandatory sorting requirements				
To earn extra income or save money (CRV deposit refunds, metal recycling, or refill discounts)				

20. Do you feel your community has enough access to:

Access For	Yes	Somewhat	No	Unsure
Waste disposal services				
Recycling services				
Composting services				
Clean and safe parks and outdoor spaces				
Reliable environmental health information				
Community programs about health risks and pollution				

21. Do you feel environmental problems disproportionately affect certain groups in your area (e.g. low-income residents, minorities, people of color, youth)?
- Yes
 - No
 - Unsure

Please share any additional thoughts or feedback.

F-8. Environmental Impacts

The goal of recycling and composting programs is to have a positive impact on the environment, but CalRecycle wants to know if you have experienced environmental impacts from the methods used to collect and process recyclable and compostable materials.

22. How concerned are you about the potential **impacts** caused by collection trucks?

Potential Impacts	Unsure or unaware of impacts	Somewhat concerned	Concerned	Very concerned
Environmental impacts				
Greenhouse gas (GHG) emissions				
Neighborhood cleanliness issues				
Litter or spillover from trucks				
Increased waste filling the nearest landfill				

23. Do you feel that the collection and processing of recyclable and compostable materials have any of the following **negative environmental impacts**? Please select all that apply.
- Greenhouse gases (GHGs) produced by collection vehicles
 - Increased energy consumption by processing facilities
 - Litter caused by materials falling out of containers and trucks
 - Water pollution by chemicals from material processing
 - None *[Because you selected "None", no other responses to this question will be recorded.]*
 - Other [If you selected "Other" please explain.]

24. What do you feel are the most **positive environmental benefits** of recycling and composting? Please select all that apply.

- a. Reduced greenhouse gas (GHG) emissions by diverting recyclable materials/compostable materials from landfills (helps address climate change)
- b. Composting produces nutrient-rich compost, which enhances soil quality, improves water retention, and reduces the need for chemical fertilizers
- c. Recycling materials consumes less energy and resources than producing new materials, leading to lower carbon footprint and protection of natural resources
- d. Collecting and recycling plastic waste helps reduce the amount of plastic that ends up in the environment as litter
- e. Recycling programs help raise awareness about environmental conservation, fostering a culture of environmental responsibility in communities
- f. None [*Because you selected "None", no other responses to this question will be recorded.*]
- g. Other [If you selected "Other" please explain.]

F-9. Public Health Impacts

Composting, reducing, reusing, and recycling can provide many public health benefits; however, the methods used to collect and process materials for recycling and composting could have impacts that CalRecycle wants to take into consideration.

25. How concerned are you about the potential **health** impacts caused by collection trucks?

Potential Impacts	Unsure or unaware of impacts	Somewhat concerned	Concerned	Very concerned
Health impacts				
Noise impacts				
Neighborhood safety impacts				
Traffic				
Odors				

26. Do you live near a recycling or composting facility?

a. Yes

- 1. Do you feel that the facility impacts your health and the local environment?
 - 1. Has a positive impact
 - 2. Has no impact/neutral
 - 3. Has a negative impact
 - 4. Unsure

2. Do you feel that you've had opportunities to express your feelings about the facility with your local community leaders, elected officials or facility staff?
 1. Yes
 2. No
 - b. No
 - c. Unsure
27. What do you feel are the most **positive neighborhood and community benefits** of recycling collection? Please select all that apply.
- a. Recycling and composting programs create green jobs that can provide employment in local communities
 - b. Collection of materials can reduce the number of materials that end up as litter and pollution, which helps create cleaner neighborhoods
 - c. Fosters a culture of environmental responsibility among community members
 - d. If a California Redemption Value (CRV) collection facility is present, it can provide supplementary income for local residents
 - e. None *[Because you selected "None," no other responses to this question will be recorded.]*
 - f. Other *[If you selected "Other" please explain.]*
28. Do you feel that the collection and processing of recyclable and compostable materials has any of the following **negative neighborhood and community impacts**? Please select all that apply.
- a. Noise pollution
 - b. Traffic congestion or accidents
 - c. Reduced space for driving, parking and biking in the streets on collection day due to containers in the way
 - d. Reduced space for walking, wheelchairs and strollers in the sidewalks and streets on collection day due to containers being in the way
 - e. Pedestrian safety
 - f. Collection worker safety
 - g. Litter
 - h. None *[Because you selected "None", no other responses to this question will be recorded.]*
 - i. Other *[If you selected "Other" please explain.]*
29. Which strategies would you feel would be the most effective in reducing the **potential negative impacts** if recycling and compostable materials collection were to be expanded in your area? Please select all that apply.
- a. Use of electric collection vehicles to reduce emissions and noise
 - b. More efficient collection routes

- c. Increased public education on how to use recycling and composting programs to benefit public health, communities and the environment
- d. Limiting operating hours to avoid traffic congestion and improve pedestrian safety
- e. Improved bike lanes and sidewalks
- f. None *[Because you selected "None", no other responses to this question will be recorded.]*
- g. Other [If you selected "Other" please explain.]

F-10. Sorting and Contamination

Contamination occurs when waste is not sorted into the right containers for trash/landfill, recycling, or composting. When an item is placed into the wrong container and is not recyclable or compostable by your local service provider, the contents of the whole container could be labeled "contaminated" and sent to the landfill, because many collection facilities do not have the capacity to sort through contaminated contents.

30. Have you received education from your city or recycling service provider on how to sort waste and prevent contamination?

- a. Yes
 - 1. What types of information materials have you received? Please select all that apply.
 - 1. Newsletter
 - 2. Postcard
 - 3. Sorting signage on collection bins
 - 4. Container tag / warning notice
 - 5. Contamination fee
 - 6. Social media posts
 - 7. In-person technical assistance / site visits
 - 8. Other [If you selected "Other" please explain.]

b. No

c. Unsure

31. Which materials do you feel most confident about placing into your recyclable materials container? Please select all that apply.

- a. Not applicable – no separate recycling container provided in my area or I don't subscribe for this service. *[Because you selected "Not applicable", no other responses to this question will be recorded.]*
- b. Paper
- c. Cardboard
- d. CA Redemption Value (CRV) beverage containers
- e. Metal cans and tins (Other than CRV beverage containers)
- f. Plastic containers and tubs

- g. Glass jars
32. Which materials are the most confusing for you to sort for recycling or disposal?
Please select all that apply.
- a. Paper
 - b. Cardboard
 - c. Metals
 - d. Plastics
 - e. Glass
 - f. Items with multiple material types (e.g., paper lined with plastic)
 - g. Electronic waste
 - h. Hazardous chemicals and cleaning supplies
 - i. Medications
 - j. Sharps/needles
 - k. Other [If you selected "Other" please explain.]
33. Which scenarios are the most confusing to you when sorting materials? Please select all that apply
- a. Not applicable – no separate recycling container provided in my area or I don't subscribe for this service. [*Because you selected "Not applicable", no other responses to this question will be recorded.*]
 - b. When items are recyclable but have not been cleaned or might be too dirty
 - c. When packaging is made of mixed materials (e.g. plastic yogurt cup with aluminum foil lid, clear plastic shell glued to cardboard backing)
 - d. When plastics do not have a recycling number on them (such as ♻)
 - e. When parts of a package need to be separated for recycling
 - f. When plastic pieces are very small (such as bottle caps)
 - g. When plastic packaging or plastic bags say "recyclable in certain areas" or similar
 - h. When food scraps contain ingredients that seem like they might not be compostable (such as meat and bones)
 - i. When single-use food containers and utensils appear recyclable or compostable
 - j. Where to sort common items like coffee cups, wine corks, or waxed paper.
 - k. Other [If you selected "Other" please explain.]
34. How do you decide whether to put plastic items in the trash or recycling container (if available)? Please select all that apply.
- a. Not applicable – no separate recycling container provided in my area or I don't subscribe for this service. [*Because you selected "Not applicable", no other responses to this question will be recorded.*]
 - b. Put all plastic items in the trash
 - c. Put all plastic items in the recycling container

- d. Separate plastic items between trash, recycling, and containers based on personal knowledge and experience
 - e. Look for the recycling **symbol** (♻) on the item to decide whether to put items in the recycling containers
 - f. Look at the **number** in the recycling symbol (♻) labeled on the item to decide whether to put it in the recycling container
 - g. Other [If you selected "Other" please explain.]
35. What are some of the ways you prepare your recyclables before placing them in the recycling container? Please select all that apply.
- a. Not applicable – no separate recycling container provided in my area or I don't subscribe for this service. [*Because you selected "Not applicable", no other responses to this question will be recorded.*]
 - b. Rinse and dry recyclables
 - c. Rinse recyclables without drying
 - d. Scrape out food and/or other substances
 - e. Remove pieces that seem nonrecyclable (e.g., film, tape, adhesive labels, or envelope windows.)
 - f. No preparation before placing recyclables in container [*Because you selected "Not applicable" or "No preparation", no other responses to this question will be recorded.*]
 - g. Other [If you selected "Other" please explain.]
36. Which materials are the most confusing to sort into your composting container? Please select all that apply.
- a. Not applicable – no separate composting container provided in my area or I don't subscribe for this service. [*Because you selected "Not applicable", no other responses to this question will be recorded.*]
 - b. Food scraps (raw and cooked)
 - c. Packaged and processed foods
 - d. Garden and plant materials (e.g. yard waste, potting soil)
 - e. Compostable plastic food containers
 - f. Compostable paper food containers (e.g. some types of paper takeout boxes or coffee cups)
 - g. Compostable food service ware (straws and utensils marked "compostable")
 - h. Soiled paper
 - i. Other [If you selected "Other" please explain.]
37. Which scenarios have you faced that might lead to contamination and improper sorting? Please select all that apply.
- a. Confusion over how to sort
 - b. Other people placing items in your containers

- c. Difficult to access recycling and composting containers
 - d. More convenient to place all items in one container
 - e. Too messy or unsanitary to prepare and sort materials
 - f. Lack of trust in the recycling system (e.g., feeling like materials are not actually recycled)
 - g. Other [If you selected “Other” please explain.]
38. What are the impacts of contamination that you are aware of? Please select all that apply.
- a. I can be charged fees from my collection service provider for contamination
 - b. My collection services can be temporarily or permanently discontinued due to repeated contamination
 - c. Improperly sorted material can be processed as trash
 - d. Other [If you selected “Other” please explain.]

F-11. Information and Education

Being motivated to recycle and compost is the first step, but if you and your community can't easily find information on how to participate in local programs, sorting your waste into the right containers can quickly turn into a guessing game. CalRecycle wants to know about the information and education that have been available to you, which will help us understand how to provide the resources you need to feel confident about recycling and composting.

39. How do you currently receive and/or would prefer to receive information about recycling programs? Please select all that apply.

Type of Information Received	I currently receive information through this method	I made changes in how I recycle after I received information through this method	I prefer to receive information through this method	Does not apply
Mail				
Email				
Phone				
Social media				
TV or radio advertisements				
Billboard/outdoor advertisements				
Infographic on recycling programs				

Type of Information Received	I currently receive information through this method	I made changes in how I recycle after I received information through this method	I prefer to receive information through this method	Does not apply
Educational materials from schools				
Label on product				
Website				
Other				

If you selected "Other" please explain:+

40. Recently, have you made any changes to your recycling behavior?

Recycling Behavior	Yes	No
Increased effort to sort recycling		
Gained knowledge about recycling		
Looked into local options for recycling		
Coordinated with family and/or neighbors about recycling		
Participated in CRV redemption programs		
Purchased recyclable, bulk packaged, or packaging-free products		
Other		

If you selected "Other" please explain:

41. What are some of the challenges or barriers you face in participating in CURBSIDE recycling and composting programs and how significant are these barriers? Please select all that apply.

Challenges / Barriers	Not at all a barrier	Somewhat a barrier	Significant barrier
Lack of availability/services			
Cost of service			
Lack of awareness of available programs			
Confusion on how to sort materials			
Unclear product labels			
Inconvenience			
Lower priority compared to other needs and concerns			
Lack of trust in the recycling system			
Not enough space for recycling and composting containers			
Information not available in your primary language			
Difficulty requesting service or information from local collection services provider			
Difficulty coordinating with property managers, landlords, homeowners associations, or city services			
Misinformation received about recycling			

Please share any additional thoughts or feedback

42. What information and educational materials would you like to be provided about recyclable and compostable materials collection? Please select all that apply.=

- a. Which items to place in recycling containers
- b. Which items to place in compost containers
- c. Recycling and/or compost collection services that are available locally
- d. Why properly sorting and cleaning recyclables before disposal is good for recycling
- e. The environmental benefits of recycling and composting
- f. Tips to minimize the challenges of recycling and compost management
- g. None [*Because you selected "None", no other responses to this question will be recorded.*]
- h. Other [If you selected "Other" please explain.]

Appendix G: Aggregated CBO, EJ Group, and Tribe Introductory Meetings, Listening Sessions and Response Rates

Four virtual introductory meetings were held during the engagement periods from July 14 to August 18, 2025. The introductory meetings were limited in attendance to representatives of selected CBOs, EJ groups, and Tribes. A total of 12 CBOs and two Tribes participated in various introductory meetings, as noted in Table G-1.

Table G-1: Virtual Introductory Meeting Metrics: Participation Rates

Meeting	Date	Number and Names of CBOs/EJ Groups/Tribes Represented	Number of Attendees	Regions Represented
CBO Virtual Introduction	7/14/25	<ol style="list-style-type: none"> 1. Black Women for Wellness (EJCAP) 2. Communities for Sustainable Monterey County 3. Del Norte & Tribal Lands Community Food Council 4. Hmong Youth and Parents United 5. I Love a Clean San Diego 6. Monterey Bay Aquarium 7. Physicians for Social Responsibility LA c/o Environmental Justice Communities Against Plastic (EJCAP) 8. Valley Improvement Projects (EJCAP) 	9	Coastal (4), Southern (3), Valley (2)
Tribe Virtual Introduction	7/15/25	<ol style="list-style-type: none"> 1. Big Pine Paiute Tribe of the Owens Valley 	1	Mountain (1)
CBO Virtual Introduction	8/5/25	<ol style="list-style-type: none"> 1. Los Angeles Environmental Justice Network 2. Orange County Coastkeeper 3. Literacy for Environmental Justice 4. Growing Modoc 	4	Southern (2), Mountain (1), Bay Area (1)

Meeting	Date	Number and Names of CBOs/EJ Groups/Tribes Represented	Number of Attendees	Regions Represented
Tribe Virtual Introduction	8/5/25	1. Chicken Ranch Rancheria of Me-Wuk Indians of California	1	Mountain (1)

Ten virtual listening sessions were held during the engagement period from August 4 to August 18, 2025. The listening sessions were limited in attendance to representatives of CBOs, EJ Groups and Tribes who voiced an interest to participate based on outreach conducted to the approved list. The listening sessions provided a forum for participants to share their lived experiences related to plastics recycling, including barriers and opportunities for recycling, and to ask questions. A total of 12 CBOs and EJ groups and three Tribes participated in the listening sessions, as noted in Table G-2. Table G-8 highlights the communities represented by each of the CBOs and EJ groups that participated in introductory meetings and listening sessions for the study.

Table G-2: Listening Sessions Metrics: Participation Rates

Meeting	Date	Number and Names of CBOs/EJ Groups/Tribes Represented	Number of Attendees	Regions Represented
CBO Virtual Listening Session	8/4/25	0	0	N/A
Tribe Virtual Listening Session	8/4/25	0	0	N/A
CBO Virtual Listening Session	8/6/25	1. Communities for a Sustainable Monterey County 2. I Love a Clean San Diego	2	Coastal (1), Southern (1)
Tribe Virtual Listening Session	8/6/25	1. Big Pine Paiute Tribe of the Owens Valley 2. Iipay Nation of Santa Ysabel	3	Mountain (2), Southern (1)
CBO Virtual Listening Session	8/12/25	1. Mono Lake Committee	1	Mountain (1)

Meeting	Date	Number and Names of CBOs/EJ Groups/Tribes Represented	Number of Attendees	Regions Represented
Tribe Virtual Listening Session	8/12/25	1. Chicken Ranch Rancheria	1	Mountain (1)
CBO Virtual Listening Session	8/14/25	1. Growing Modoc 2. Hmong Parents and Youth 3. Lassen - Plumas Sierra Community Action Agency 4. Los Angeles Environmental Justice Network 5. Monterey Bay Aquarium 6. Orange County Coastkeeper	7	Coastal (1), Mountain (2), Southern (2), Valley (2)
Tribe Virtual Listening Session	8/14/25	0	0	N/A
CBO Virtual Listening Session	8/18/25	1. Black Women for Wellness 2. Physicians for Social Responsibility LA 3. Valley Improvement Projects	3	Southern (2), Valley (1)
Tribe Virtual Listening Session	8/18/25	0	0	N/A

A total of 332 surveys were collected. All surveys were completed in English, and while Spanish and Simplified Chinese surveys were offered, none were completed. Responses were received from all five characterization study regions. This includes responses from 14 CBOs and three Tribes. Engagement and outreach activities were focused on soliciting survey responses and gathering quantitative and qualitative data and input for the current and needed state reports on collection, processing, and end markets. Table G-3 highlights the survey number of surveys taken by representatives of CBOs, EJ groups, Tribes, and members of their communities.

Table G-3. Community Recycling and Composting Survey Metrics

Survey Type	Southern	Valley	Mountain	Coastal	Bay Area	Total
CBO or EJ Group Representative	6	3	3	2	0	14
CBO or EJ Group Community Member	102	84	77	44	3	310
Total CBO and EJ Group Survey Responses	108	87	80	46	3	324
Tribal Representative	1	0	2	0	0	3
Tribal Community Member	2	0	3	0	0	5
Total Tribal Survey Responses	3	0	5	0	0	8
Total Number of Surveys	111	87	85	46	3	332

There were 14 CBOs and EJ groups and three Tribes that took the survey on behalf of their organization and are highlighted in Table G-4 (CBOs and EJ groups) and Table G-5 highlight (Tribes).

Table G-4. CBOs and EJ Groups that Provided Response to Survey

CBO or EJ Group Name	Survey Response Submitted
Black Women for Wellness (EJCAP)	7/23/2025
Comite Civico Del Valle	8/25/2025
Communities for a Sustainable Monterey County	7/20/2025
Del Norte & Tribal Lands Community Food Council	7/18/2025
Growing Modoc	8/5/2025
Hmong Youth and Parents United	8/18/2025
I Love a Clean San Diego	7/31/2025
Lassen-Plumas - Sierra Community Action Agency	8/12/2025
Los Angeles Environmental Justice Network	8/15/2025
Mono Lake Committee	8/11/2025
Monterey Bay Aquarium	7/25/2025
Pacoima Beautiful (EJCAP)	7/24/2025
Physicians for Social Responsibility (EJCAP)	8/13/2025
Valley Improvement Project (EJCAP)	8/14/2025

Table G-5. Tribes that Provided Response to Survey

Tribe Name	Survey Response Submitted
Big Pine Paiute Tribe of the Owens Valley	8/14/2025
Chicken Ranch Rancheria of Me-Wuk Indians of California	7/28/2025
lipay Nation of Santa Ysabel	8/7/2025

Table G-6 and Table G-7 list the number of survey responses received from each of the CBOs, EJ groups, and Tribes by region. Table G-8 highlights the communities represented by each of the CBOs and EJ groups that participated in introductory meetings and listening sessions for the study.

Table G-6. CBO and EJ Group Survey Respondents

CBO or EJ Group Name	Number of Surveys	Region Represented
1. Black Women for Wellness	35	Southern
2. Comite Civico Del Valle	1	Southern
3. Communities for a Sustainable Monterey County	37	Coastal, Bay Area
4. Del Norte & Tribal Lands Community Food Council	1	Coastal
5. Growing Modoc	26	Mountain
6. Hmong Youth and Parents United	23	Valley
7. I Love a Clean San Diego	42	Southern
8. Lassen-Plumas - Sierra Community Action Agency	29	Mountain
9. Los Angeles Environmental Justice Network	15	Southern, Valley
10. Mono Lake Committee	22	Mountain
11. Monterey Bay Aquarium	1	Valley
12. Pacoima Beautiful	1	Southern
13. Physicians for Social Responsibility	4	Southern
14. Valley Improvement Project	59	Valley, Bay Area
Survey Responses from Undisclosed CBOs and EJ Groups	28	Southern (11), Mountain (3), Coastal (10), Valley (4)
Total	324	

Table G-7. Tribe Survey Responses

Tribe Name	Number of Surveys	Region Represented
1. Big Pine Paiute Tribe of the Owens Valley	1	Mountain
2. Chicken Ranch Rancheria of Me-Wuk Indians of California	4	Mountain
3. Iipay Nation of Santa Ysabel	3	Southern
Total	8	

Table G-8. CBO and EJ Group Participants in Introductory Meetings and Listening Sessions

CBO or EJ Group Name	Region Represented	Communities Represented
Black Women for Wellness (EJCAP)	Southern, Valley	Black women and girls in Los Angeles County, Stockton, and the San Joaquin Valley.
Communities for a Sustainable Monterey County	Coastal, Bay Area	Monterey County
Del Norte & Tribal Lands Community Food Council	Coastal	Rural areas of Del Norte County
Hmong Youth and Parents United	Valley	Hmong Americans and under-resourced, marginalized, and vulnerable communities in the greater Sacramento region
I Love a Clean San Diego	Southern	Residents and businesses in San Diego County
Monterey Bay Aquarium	Valley	Individuals dedicated to ocean conservation
Physicians for Social Responsibility LA (EJCAP)	Southern	Health professionals advocating for communities impacted by environmental racism, pollution, and injustice

CBO or EJ Group Name	Region Represented	Communities Represented
Los Angeles Environmental Justice Network	Southern	Unincorporated neighborhoods of Harbor Gateway between the cities of Torrance, Carson, Gardena, and Harbor City, within Los Angeles County that are subject to heavy truck traffic due to major highways and warehouses, as well as emissions from nearby industrial facilities.
Lassen – Plumas – Sierra Community Action Agency	Mountain	Low-income residents in Plumas County
Orange County Coastkeeper	Southern	Nonprofit clean water organization that serves to protect swimmable, drinkable, fishable water and promote watershed resilience throughout the Orange County region
Literacy for Environmental Justice	Bay Area	Promotes ecological health, environmental stewardship, and community development in Southeast San Francisco by creating urban greening, eco-literacy, community stewardship, and workforce development opportunities that directly engage and support local residents in securing a healthier future.
Growing Modoc	Mountain	Rural families in Modoc County
Mono Lake Committee	Mountain	Citizens dedicated to protecting and restoring the Mono Basin ecosystem
Valley Improvement Projects (EJCAP)	Valley	Underrepresented and marginalized residents of the Northern San Joaquin Valley.

Introductory Meeting and Listening Session Feedback

Introductory meetings and listening sessions provided insights into the perspectives and expertise of CBOs, EJ groups, and Tribes about solid waste programs and managing of materials. Their experiences with processing facility locations, their potential environmental and health impacts, and how these systems affect their communities provided valuable information for this study.

The following are themes and key findings from engagement:

- Many of the CBOs, EJ groups, and Tribes believe that recycling is one aspect of reducing environmental impacts of plastic pollution, while also producing less material upstream and creating more reuse and zero-waste systems is another crucial aspect of creating healthier environments and communities for the future. Communities show concern over environmental issues and want to transition away from the single use economy, but there are gaps in the waste systems and gaps in people's knowledge or ability to effectively participate in them. During one of the listening sessions, a CBO member mentioned that many of the survey questions had an implicit bias that suggested they can recycle their way out of having too much material going to the landfill or being illegally dumped, when they felt the focus should be reducing the amount of plastic production. A concern that CBOs, EJ groups, and Tribes expressed with the recycling system, in general, is overreliance on the message that recycling is the ultimate solution.
- While most communities prioritize environmental and public health, lessening negative environmental impacts through recycling or composting is not always front of mind for some members of CBOs, EJ groups, and Tribes. It was mentioned that care for the environment is a huge motivating factor, but more education to their communities is still needed for awareness and action.
- Some communities are acutely aware of the environmental impacts of plastic pollution, such as coastal communities that are concerned for marine life. Fear of pollution and its impacts on human life and surrounding ecosystems is a driving motivator for many communities. For others, education on how damaging some products are to the environment could help to increase awareness and thereby motivate more individuals to recycle.
- Financial incentives were a common theme among CBOs, EJ groups, and Tribes, who advocated for clear, easy-to-understand programs with monetary incentives which could help motivate community members to recycle and compost. They stated that scaling services is difficult without proper funding, and insufficient funding can cause the delay of many services to be rolled out. Implementing solid waste services is expensive and has been mostly supported by grants which can be inconsistent and are often time-bound. There is a need for larger and more consistent grant opportunities to fund services, capital improvements, waste management tracking software, more efficient trucks, and rate studies. While Tribes may be awarded grants to build transfer stations, drop offs and processing facilities, receiving funding and subsidies is not always the norm.
- Not all forms of managing waste materials are considered ethical or acceptable by communities, such as incineration and other energy generation and fuel production technologies, because these often cause more health issues in the communities in which they are utilized. One CBO discussed the negative legacy left by the last operational waste incinerator in California, located in Stanislaus County. As a result, surrounding communities struggle

to trust that materials are being ethically and environmentally disposed of or reused.

- Some CBOs and EJ groups expressed a lack of trust that materials actually get recycled. These groups cite reporting of plastic being shipped out of the country, and are not confident that this material ends up actually being recycled. CBOs and EJ groups want to spread awareness of the environmental impacts of plastic pollution and what happens when this material is not properly recycled.
- There is a desire to see composting and recycling services expand into more rural areas, particularly in making drop-off locations more accessible so that communities have fewer barriers to participate and can receive money by dropping off CRV materials. In one instance, a CBO had a recycling center within their county; however, not all individuals have access to a vehicle, or the ability to transport recyclables to the single recycling center. Convenience is an issue for community members that have to transport their own materials.
- Illegal dumping is a concern for CBOs and EJ groups and a contributing cause of contamination and environmental pollution. There is a need to improve prevention and mitigation measures to minimize the effects of illegal dumping on surrounding communities.
- It was recommended to pursue varied approaches to make it easier, more convenient, incentivized, and more familiar for communities to access recycling and composting, such as increasing access to collection for recycling and compost in rural areas, supporting large-scale composting facilities, and supporting ongoing education efforts.
- One CBO shared that they focus on educating their communities on how plastic pollution can have negative health effects, particularly on women. They advocate for amplifying Black women's voices, who are often disproportionately affected by environmental pollution.
- One organization reported their motivation to participate in this study was to ensure that environmental justice communities are heard and involved in the process.

Tribe Feedback

The following were themes specific to Tribal engagement:

- There is perception that there are no available plastic recycling services and most plastic ends up in a landfill.
- Many communities do not trust the recycling process as they already see inconsistency in their services for trash/landfill pickup.
- Communities report concern over the negative health effects of plastic pollution. It is important to hear from and engage with communities who are disproportionately

affected by environmental pollution. This includes odors from compost facilities, noise from processing facilities, and illegal dumping.

- One Tribe mentioned they do compost and there are some drop-off sites in the area, but there is a general lack of awareness regarding location of facilities.
- Increasing access to CRV redemption would increase participation in recycling.
- Tribal community members are motivated by the desire to protect the environment.
- Materials that could be recycled are prone to entering the landfill stream in Tribal communities when there are no drop-off sites or there is limited access to recycling.

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