

California Diversion Plan Takeaways

- Provides the details of the methodology utilized for their diversion study. The details can be applied to the MMAC efforts and could prove useful for any survey or study deployed on behalf of MMAC. The following are provided in the “how to” portion of the study: design and how to conduct the diversion study, analyze data and calculating diversion, determining base year, residential vs non residential assessment, overall data collection approach, appropriate sampling methods, developing data collection tools, and how to address restricted waste, etc.
- “Business Waste Prevention and recycling on site survey form” - This form helps businesses gather essential info needed for the study. This form gets the company to look at what waste they prevented from entering the trash through their specific waste prevention and recycling efforts inhouse.
- “Big picture evaluation checklist for field review” - this list aides the survey efforts if a field visit is required; helps put together the big picture of efforts towards diversion with an easy to use checklist of waste stream components.
- Cover letter to be sent to industry for the recycling form – describes efforts of the HB (in our case) and requests industry participation.
- “Recycling form” for cities – easy to use form which gathers total tons of diversion. It lists all the materials that would normally be diverted from landfills and options for additions etc.
- Guidance on “What Counts Towards Diversion” – this is mostly based on state rules but could be useful in the survey.
- “Weight Conversion Sources and Tables” – a great resource
- “Determining Number of Samples” – this is a great tool for the survey details.
- “Base Year proposals” – use where and if applicable.

Design the Diversion Study.

- Determine the goal of the diversion study.
- Identify amount of time needed to conduct the study.
- Identify available resources to conduct the study.
- Assess the characteristics of the community, e.g. residential vs. non-residential.
- Identify where to capture diversion data, (e.g. haulers, recyclers, non-residential sector generators, etc.).
- Determine overall data collection approach.
 - Reference the CIWMB's profiles database at: <http://www.ciwmb.ca.gov/Profiles/>.
 - Identify the CIWMB Waste Reduction Awards Program winning recipients in your jurisdiction.
 - Consider conducting a regional diversion study to include other neighboring jurisdictions.
 - Establish whether surveying generators will require the use of extrapolation method(s).
 - Determine appropriate sampling method; e.g., random vs. stratified.
 - Develop collection data tools; e.g., phone, mail, on-site survey forms.
 - Address restricted wastes.

Conduct the Diversion Study.

- Prepare quality control procedures for the study; e.g., test survey method and forms, and train staff.
- Contact the service providers—e.g., haulers, recyclers, processors; then collect the available data.
- Collect data from generators: verify the residential and non-residential sector generators and collect diversion survey data.

Analyze Data and Calculating Diversion.

- Evaluate, analyze, and perform quality control checks of data collected.
- Make comparisons of data sources to avoid double counting.
- Reference and use appropriate conversion factors: Appendix I includes guidance regarding the use of appropriate conversion factors to determine weights.
- Compile and calculate diversion and disposal data.
 - Compile the data for service providers and generator sectors by diversion activities.
 - Gather Disposal Reporting System data and report any suspect issues to the CIWMB Office of Local Assistance. Compile disposal data by generator sectors (residential and non-residential). If an alternative method was used, please complete the CIWMB Reporting Year Modification Certification form.
 - Calculate total generation amount and diversion rate.

Evaluate, Analyze, and Perform Quality Control Checks of Data Collected

As soon as the raw data is collected, examine it for logical or numerical entry errors made by the respondents. To reduce collection costs, follow up with respondents to clarify or fix response errors, if possible....

Make Comparisons of Data to Avoid Double Counting

Double counting can be a major source for data error. For each type of generation source, the jurisdiction must have determined and verified the best place in the waste flow cycle to capture the diverted tonnage and material type data. ...

Appropriate Conversion Factors

Included in this guide are sources of conversion factors for numerous items and materials that you may want to consider using for calculating your overall diversion (Appendix I)....

Compile and Calculate Diversion and Disposal Data

The diversion data that has been collected and analyzed for the nonresidential and residential sectors should be compiled. ...

Appendix A

Business Waste Prevention and Recycling On-Site Survey Form

Business Waste Prevention and Recycling On-Site Survey Form

Name of Business: _____ **Contact:** _____

Location: _____

Position: _____

Date and Time: _____

Telephone: _____

1. Ask to speak to someone in the business that deals with waste prevention, recycling, and garbage service.
2. Introductions and exchange business cards.
3. The purpose of our visit today is to take a look at what waste you have prevented from entering the trash through your waste prevention and recycling efforts. Please have no fear—we are not here in an enforcement mode and you've done nothing wrong. As you may have heard, State law requires that all cities and counties reduce the amount of waste going to landfills by 50 percent. As a business within the city, you are helping that effort.

In order to determine the amount of waste kept out of the landfills, we need to look at the top waste generators in the city and quantify their diversion efforts. We are surveying (*number of surveys, i.e. 200*) businesses in the city to capture an accurate picture.

We appreciate your time today. The information you provide will be very helpful to our study.

General Description:

4. To help us understand your business, could you please give a general description of your business, including any waste prevention (source reduction), recycling, and composting programs?

Thank you for sharing an overview of your business. That was very useful for us to understand your business better. At this point we want to look at your waste stream and quantify your source reduction and recycling efforts, so we can make calculations to determine the amount of materials that you are helping to keep out of the landfill.

5. How many employees does your business have?

Summer- Full-time: _____ Part-time: _____ Winter-Full-time: _____ Part-time: _____

Note: Try to determine the total full-time equivalent.

6. Is there a policy or program regarding waste prevention and waste reduction efforts? When did the policy/program start?

Note: For each source reduction activity, you will need to ask when the program started. You may be able to collect data before the survey year for existing programs and data for new programs started in the survey year.

Business Waste Reduction and Recycling On-Site Survey Form, page 2

Source Reduction

What type of material do you currently use less of as a result of a waste prevention plan or policy? For each material, how much do you divert? *Note: The surveyor should record all calculations used to quantify source reduction.*

_____ Double-sided copying _____ Reusing paper for note pads _____ Donating used equipment

_____ Switching to reusable shipping containers _____ Reusing pallets _____ Donating food

_____ Routing memos instead of individual copies _____ Reuse packaging materials _____ Return toner cartridges

_____ Other: _____

When did these diversion activities start? Before 1990? _____ After 1990? _____ If before 1990, has it expanded?

Note: *If restricted wastes, agricultural wastes, inert solids (e.g., concrete, asphalt, dirt, etc.), white goods (i.e., appliances), and/or scrap metal are diverted, please provide the following information for each waste type: (Note: Restricted waste tonnage cannot be extrapolated.)*

Specific waste type _____ *Amount diverted* _____ *Year program started* _____

Description of diversion program _____

Recycling

What materials do you currently recycle? For each material, what is the tonnage that is recycled?

_____ Plastic (PET/HDPE) _____ Newspaper _____ White ledger _____ Mixed Paper _____ Tires

_____ Concrete/Asphalt _____ Glass _____ Cardboard _____ Aluminum/tin cans _____ Scrap Metal

_____ Wood _____ Other: _____ (e.g. phone books, grease etc.)

When did these diversion activities start? Before 1990? _____ After 1990? _____ If before 1990, has it expanded?

Are any of these materials collected by the franchise hauler?

If not, who collects them? _____

If they are self hauled, where are the materials taken? _____

Note: *If restricted wastes, agricultural wastes, inert solids (e.g., concrete, asphalt, dirt, etc.), white goods (i.e., appliances), and/or scrap metal are diverted, please provide the following information for each waste type (Note: Restricted waste tonnage cannot be extrapolated.):*

Specific waste type _____ *Amount diverted* _____ *Year program started* _____

Description of diversion program _____

Composting/Mulching

Do you currently compost or mulch any organic material?

How much do you divert?

_____ Lawn clippings _____ Leaves/prunings _____ Food

_____ Other: _____

When did these diversion activities start? Before 1990? _____ After 1990? _____ If before 1990, has it expanded?

Are any of these materials collected by the franchise hauler?

Note: *If restricted wastes, agricultural wastes, inert solids (e.g., concrete, asphalt, dirt, etc.), white goods (i.e., appliances), and/or scrap metal are diverted, please provide the following information for each waste type (Note: Restricted waste tonnage cannot be extrapolated.):*

Specific waste type _____ *Amount diverted* _____ *Year program started* _____

Description of diversion program _____

Future Program Assistance

What other waste do you generate in large quantities that you could divert if the opportunity existed?

What currently limits your diversion efforts?

What could the **[JURISDICTION NAME]** do to assist in making reducing, reusing, and recycling more convenient or otherwise increase your efforts?

What motivates you to recycle or reduce the quantity of materials you use? (Rank those that apply, 1-2-3)

____ Cash (material value) ____ Reduce disposal expenses ____ Reduce overall business expenses

____ Save our resources ____ Conserve disposal space ____ State regulations

Follow-up:

If you have any questions regarding this survey or recycling opportunities, please contact **[FILL IN CONTACT INFORMATION]**.

Appendix B

“Big Picture”

**Evaluation Checklist
for Field Review**

“Big Picture” Evaluation Checklist for Field Review

Breakdown of waste stream (percentage)

- Residential.
- Non-residential.

Residential and Non-Residential Service Providers

Haulers

- Number in community.
- Names.
- Type of hauling (e.g., curbside recycling, waste, etc.).
- Contact the haulers for actual tonnage information (see Appendix D for sample form).

Drop Box Haulers

- Number in community.
- Names.
- Type of hauling (e.g., curbside recycling, waste, etc.).
- Contact the haulers for actual tonnage information (see Appendix D for sample form).

Recyclers (recycling center, drop-off, scrap dealers, etc.)

- Number in community.
- Names.
- Materials recycled.
- Contact the recyclers for actual tonnage information (see Appendix D for sample form).

Composters

- Number in community.
- Names.
- Contact the composters for actual tonnage information.

Transfer Stations and Materials Recovery Facilities (MRFs)

- CIWMB SWIS database has listing of facilities.
- Contact the transfer station or MRF for tonnage information.

- ❑ **Landfills**

- ❑ Contact the landfill for diversion tonnage information.

- ❑ **Alternative Daily Cover (ADC)**

- ❑ A tonnage report is available through the Board's Disposal Reporting System.

Residential Sector Activities

- ❑ **Garage sales**

- ❑ To calculate diversion tonnage for garage sale activities, a jurisdiction should conduct a survey and provide a reasonable estimate with supporting documentation.

- ❑ **Thrift stores**

- ❑ To calculate diversion tonnage for thrift store activities, a jurisdiction should conduct a survey and provide a reasonable estimate with supporting documentation.

- ❑ **Backyard composting**

- ❑ To calculate diversion tonnage for backyard composting activities, a jurisdiction should conduct a survey and provide a reasonable estimate with supporting documentation (see Appendix J for further information).

- ❑ **Residential grasscycling**

- ❑ Determine acreage being grasscycled through surveys and apply appropriate conversion factors.

- ❑ **Xeriscaping**

- ❑ To calculate diversion tonnage, a jurisdiction should conduct a survey and provide a reasonable estimate with supporting documentation.

- ❑ **Horse manure composting/reuse**

- ❑ Total manure diverted (see Appendix I for conversion factors).

Non-Residential Sector Activities

- ❑ **Acquire list of non-residential sector generators** (e.g., businesses, schools, government agencies, etc.)

- Business licenses, commercial databases, franchise hauler can provide business names, addresses, phone numbers, and number of employees.

- ❑ **Large turf areas and associated acreage**
 - ❑ Determine acreage being grasscycled at parks, golf courses, and sports fields and apply appropriate conversion factors.

- ❑ **Xeriscaping**
 - ❑ To calculate diversion tonnage, a jurisdiction should conduct a survey and provide a reasonable estimate with supporting documentation.

- ❑ **Confidential document destruction companies**
 - ❑ Contact companies to determine tonnage of paper recycled from the businesses in the community.

- ❑ **Food banks/food rescue services within the community**
 - ❑ Contact food banks/rescue services to determine the amount of food that is diverted from restaurants, supermarkets, catering businesses, etc.

- ❑ **Rendering/tallow companies servicing community**
 - ❑ Get number of stores served in community.
 - ❑ Contact tallow companies to acquire the amount that is being recycled.

- ❑ **Tire shops**
 - ❑ Get number of tires diverted or total weight. Note: If using just number of tires, get credit for smallest tire.

- ❑ **Construction companies**
 - ❑ Contact companies that service community to determine diversion activities and amounts they undertake. Include roofers.
 - ❑ See Appendix H, “What Counts Toward Diversion,” for guidelines on addressing restricted wastes.

- ❑ **Sewage Sludge**
 - ❑ Must be diverted through land spreading, composting, etc.
 - ❑ See Appendix H, “What Counts Toward Diversion,” for guidelines on counting sludge.

- ❑ **Contact the Department of Conservation (Division of Recycling)**
 - ❑ Data includes curbside, buyback, and drop-off recycling information (see Appendix G).

Appendix C

Cover Letter for Recycling Form

Jurisdiction/Contractor Letterhead

Date

Dear (*Jurisdiction Name—e.g., City of Sacramento*) Area Recycler:

As you are aware, the (*jurisdiction name*) is under State mandate to comply with the waste diversion goals of the California Integrated Waste Management Act of 1989. We appreciate your firm's efforts to help the *city/county* meet the 50 percent diversion requirement.

The (*jurisdiction name*) is in the process of compiling an annual report to the California Integrated Waste Management Board (CIWMB). This report must provide solid waste disposal and diversion tonnage for the year _____.

The *city/county* is requesting diversion tonnage for your firm's operations in the (*jurisdiction name*) for the year of _____. Please provide recycling tonnage for all recyclable materials accepted by your firm, originating from the (*jurisdiction name*), by material type (on the attached form). Please subtract out tonnage of recyclables that were disposed. Please include all recycled tonnage, including materials collected by your firm, brought to your facility by another firm, and brought by walk-in customers. This information will be kept **confidential**. To verify the (*jurisdiction name*)'s request for this information, you may contact (*jurisdiction representative's name*) of the *city/county (department)*, at (*phone number*).

The (*jurisdiction name*) is submitting its annual report to the CIWMB within the next 30 to 40 days and must have your information by (*due date; be specific*). You may use the attached form or submit the information in your own format.

Your cooperation is much appreciated!

Sincerely,

(Signature Block)

P.S. If you need to contact me, I can be reached by phone at _____ or by fax at _____.

Appendix D

Recycling Form for Cities

Recycling Form for Cities

Solid Waste Recycling Form for City of:		Calendar Year:	
Recycling Firm:		Due Date:	
Type of Material Diverted	Annual Tonnage	Type of Material Diverted	Annual Tonnage
Paper		Groceries	
Corrugated Containers		Plastic Grocery Bags/Shopping Bags ¹	
Mixed Paper		Culls	
Newspaper		Food Banks ¹	
High Grade Ledger		Other	
Computer Paper		Food Waste	
Other Paper		Food Banks	
Plastic		Composted	
HDPE		Used Cooking Oil	
PET		Tires	
Film Plastic ¹		Appliances²	
Other Plastic		Other Materials	
Glass		Textiles and Leather	
CA Redemption Bottles		Rubber	
Other Glass		Other Organics	
Metals		Other Solid Waste (examples)	
Aluminum Cans		Porcelain Toilets	
Copper ²		Recycled Paint ²	
Steel ²		Laser Toner Cartridges	
Scrap Metal ²		Other Materials Generated by Major Businesses or Manufacturers in Community	
Other ²			
Yard Waste/Green Waste		Totals	
Mulch		Total Paper	
Compost		Total Plastic	
Other		Total Glass	
Construction and Demolition		Total Metals	
Wood		Total Yard Waste/Green Waste	
Wooden Pallets		Total Wood	
Other Wood		Total Construction and Demolition	
Inerts		Total Inerts	
Concrete ²		Total Groceries	
Asphalt ²		Total Food Waste	
Other ²		Total Tires	
		Total Appliances	
		Total Other Materials	
		Total Diversion (tons)	

1) If diversion amount is recorded in one area, do not record the same amount in another group. 2) Refer to the section on "What Counts Toward Diversion" (Appendix I) for guidelines on counting restricted waste and household hazardous waste.

Appendix F

Letter of Introduction

Jurisdiction Letterhead Recommended

Date

To All Businesses Operating in the (*Jurisdiction Name— e.g., City of Sacramento*)

Subject: Waste Reduction and Recycling Surveys

We respectfully request your participation with staff from the (*jurisdiction name and names of other participants, if any*) in their effort to conduct free waste reduction and recycling surveys at businesses throughout the (*jurisdiction name*). The purpose of these surveys is to determine the disposal diversion efforts within the (*jurisdiction name*).

These waste reduction and recycling surveys are being conducted as part of the implementation of State-mandated waste reduction requirements. State law requires each jurisdiction to divert 50 percent of its waste stream, subject to \$10,000-per-day fines for noncompliance. Your participation is essential for the (*jurisdiction name*) to reach its goal.

All information collected from your business will remain confidential. The final report to the California Integrated Waste Management Board will not identify businesses by name. The aforementioned (*jurisdiction name and/or other participants*) staff will assess your current waste management practices and follow up with recommendations for waste reduction and recycling programs for business. This survey is a cooperative effort between (*names of participants*).

If you have any questions, please contact (*name*), who is the recycling coordinator for the (*jurisdiction name*), at (*phone number*). Thank you for your participation.

Sincerely,

**Department of Conservation
(Division of Recycling)
Data Request Letter**

Jurisdiction Letterhead Required

Department of Conservation
Division of Recycling
Client Services Section
801 K Street, MS 15-54
Sacramento, California 95814

**Subject: Request for Aggregate Volume Report for Materials Collected Within the
(Jurisdiction Name—e.g., City of Sacramento)**

The (*jurisdiction name*) is collecting recycling tonnage data for the purposes of complying with the disposal reduction mandates of the California Integrated Waste Management Act of 1989, and, therefore, submits this volume report request for materials collected within the (*jurisdiction name*) during calendar year (XXXX). Please ensure that the requested volume report includes the following:

- Received weight totals reported by program type. These program types are curbside, drop-off and collection, and community service programs and recycling centers.
- Received weights by material type (aluminum, glass, PET plastic, bimetal and other beverage containers) for each facility within each program type.

Please note that the request is for volume data reported to the Department of Conservation, Division of Recycling, in received weights rather than redeemed weights.

Should you have questions or need additional information, please contact me at (telephone number).

Sincerely,

Signature Block

Appendix H

What Counts Toward Diversion?

What Counts Toward Diversion?

Most of the guidelines about “what counts” (or doesn’t) toward diversion of solid waste are defined in statute, in PRC sections 41780 through 41786 (Division 30. Waste Management; Part 2, Integrated Waste Management Plans; Chapter 6, Planning Requirements; Article 1, Waste Diversion), with further guidance in regulations. The criteria for counting something toward diversion in a 1990 or 1991 base year also apply when establishing a “new” base year (e.g., 1995).

The basic rule for what is considered “solid waste” is described in PRC section 41781:

41781. (a) Except as provided in Sections 41781.1, and 41781.2, for the purpose of determining the base rate of solid waste from which diversion requirements shall be calculated, “solid waste” includes only the following:

(1) The amount of solid waste generated within a local agency's jurisdiction, the types and quantities of which were disposed of at a permitted disposal facility as of January 1, 1990. Nothing in this section requires local agencies to perform waste characterization in addition to the waste characterization requirements established under Sections 41030, 41031, 41330, 41331, and 41332.

(2) The amount of solid waste diverted from a disposal facility or transformation facility through source reduction, recycling, or composting.

(b) For the purposes of this section, “solid waste” does not include any solid waste, which would not normally be disposed of at a disposal facility.

(c) For the purposes of this chapter, the amount of solid waste from which the required reductions are measured shall be the amount of solid waste existing on January 1, 1990, with future adjustments for increases or decreases in the quantity of waste caused only by changes in population or changes in the number or size of governmental, industrial, or commercial operations in the jurisdiction.

The term “normally disposed” is defined in the Board’s regulations [Title 14, California Code of Regulations (14 CCR), section 18720 (a) (44)]. Simply stated, all wastes types/categories [as listed in 14 CCR Article 6.1, section 18722(j)] that were diverted from a landfill or transformation facility in the base year must have been “normally disposed” (i.e., constituted at least 0.001 percent of disposal) in the jurisdiction’s original base year (i.e., January 1, 1990, per PRC section 41781) for that diversion to “count,” **unless other restrictions also apply.**

Several solid waste types have **additional** statutory restrictions or conditions for counting either their diversion, or allowances for their deduction from disposal. These are listed below, in alphabetical order, by waste or facility type:

1. ADC (alternative daily cover). The use of ADC may be considered diversion, as described in PRC section 41781.3:

*41781.3. (a) The use of solid waste for beneficial reuse in the construction and operation of a solid waste landfill, **including use of alternative daily cover**, which reduces or eliminates the amount of solid waste being disposed pursuant to Section 40124, shall constitute diversion through recycling and shall not be considered disposal for the purposes of this division.*

The Board’s ADC regulations are located in Title 27, CCR, sections 20670–20705. In addition, all restrictions and criteria related to specific waste types may also apply to materials used as ADC.

2. Biomass conversion, as defined in PRC section 40106, **can count toward diversion in 2000 (but only if transformation is not also counted toward a jurisdiction’s 2000 diversion rate)** if certain conditions are met (PRC section 41783.1).

40106. (a) “Biomass conversion” means the controlled combustion, when separated from other solid waste and used for producing electricity or heat, of the following materials:

- 1) agricultural crop residues;*
- 2) bark, lawn, yard, and garden clippings;*
- 3) leaves, silvicultural residue, and tree and brush pruning;*

- 4) wood, wood chips, and wood waste;
 - 5) non-recyclable pulp or non-recyclable paper materials.
- (b) "Biomass conversion" does not include the controlled combustion of recyclable pulp or recyclable paper materials, or materials that contain sewage sludge, industrial sludge, medical waste, hazardous waste, or either high-level or low-level radioactive waste.
- (c) For purposes of this section, "non-recyclable pulp or non-recyclable paper materials" means either of the following, as determined by the Board:
- (1) Paper products or fibrous materials that cannot be technically, feasibly, or legally recycled because of the manner in which the product or material has been manufactured, treated, coated, or constructed.
 - (2) Paper products or fibrous materials that have become soiled or contaminated and as a result cannot be technically, feasibly, or legally recycled.

41783.1. (a) For any city, county, or regional agency source reduction and recycling element submitted to the board after January 1, 1995, **the 50 percent diversion requirement specified in paragraph (2) of subdivision (a) of Section 41780 may include not more than 10 percent through biomass conversion if all of the following conditions are met:**

- (1) The biomass conversion project exclusively processes biomass.
- (2) The biomass conversion project is in compliance with all applicable air quality laws, rules, and regulations.
- (3) The ash or other residue from the biomass conversion project is regularly tested to determine if it is hazardous waste and, if it is determined to be hazardous waste, the ash or other residue is sent to a class 1 hazardous waste disposal facility.
- (4) The board determines, at a public hearing, based upon substantial evidence in the record, that the city, county, or regional agency is, and will continue to be, effectively implementing all feasible source reduction, recycling, and composting measures.
- (5) **The city, county, or regional agency does not include transformation, as authorized pursuant to Section 41783, in its source reduction and recycling element.**

Also, PRC section 41781.2 (g) applies:

41781.2 (g): **Notwithstanding any other provision of law, for purposes of determining the base amount of solid waste from which the diversion requirements of this article shall be calculated for a city, county, or regional agency which includes biomass conversion in its SRRE pursuant to Section 41783.1, the base amount shall include those materials disposed of in the base year at biomass conversion facilities.**

3. Disaster waste. Statute allows the Board to consider disposal of waste that results from a natural disaster (PRC section 41850) to be a plausible reason for a jurisdiction to not meet the diversion requirement. Board regulations used that consideration allowance as a basis for allowing a jurisdiction to deduct that waste from their reporting year disposal amount, if they provide the required documentation. Article 9.0, Section 18794.0(g) defines "disaster" as:

A natural catastrophe such as an earthquake, fire, flood, landslide, or volcanic eruption or, regardless of cause, any explosion, fire, or flood. In order to be considered a disaster, a local emergency or a state of emergency shall have been duly proclaimed. (Note: documentation must be provided to verify this).

Section 18794.2(g) of the Board's regulations specifies that documentation must be provided to demonstrate that:

- (1) the tonnage subtracted resulted from the disaster;
- (2) the jurisdiction implemented to the extent feasible, diversion programs to maximize diversion through reuse, recycling, or composting of disaster-related solid waste; and
- (3) the tonnage subtracted is consistent with the additional tonnage reported by the facilities where the solid waste was disposed.

Neither statute nor regulation specifies exactly what kinds of documents are adequate for providing the required information. This allows flexibility to jurisdictions, in providing documents that are credible, reasonably accurate, and reasonable to rely upon.

NOTE: A natural disaster IS NOT the same thing as a “one time event.”

4. Hazardous waste, or household hazardous waste, does not count toward diversion at any time (e.g., original base year, revised base year, new base year, or toward the 50 percent mandate). AB 939’s provisions relate to the diversion of solid waste. PRC section 40191(b)(1) specifies that solid waste does not include hazardous waste.

5. Marine waste. Marine waste is defined in the Board’s regulations, Article 3.0, section 18720 (a) (34):

“Marine wastes” means solid wastes generated from marine vessels and ocean work platforms, solid wastes washed onto ocean beaches, and litter discarded on ocean beaches.”

Marine waste is not listed as a specific waste type in the regulations. Instead, Article 6.1, Section 18722 (i) (5) states that a jurisdiction shall identify in its solid waste generation study (SWGS) all marine wastes generated in the jurisdiction, and assign them to the waste categories and waste types listed in (j) of Section 18722, or demonstrate that marine wastes generated within the jurisdiction have been accounted for within the commercial sources of solid waste generation. For example, diverting seaweed would probably be classified as an “other organic”, so “seaweed” as an “other organic” would have to be identified as being disposed in the jurisdiction’s base year for its diversion to be counted.

6. Regional Diversion Facility waste. That portion of a regional diversion facility’s solid waste that is the residual solid waste generated as a by-product of recycling at the facility can be deducted from the host jurisdiction’s reporting year disposal tonnage, if the criteria in PRC section 41782 are met. 14CCR, section 18794.2 (Annual Report regulations) requires a jurisdiction claiming a reduction in reporting year disposal from such waste to submit documentation with its annual report demonstrating how it meets the criteria in PRC section 41782 (cited under no.7 below). There are no guidelines specifying exactly what kind of documentation is required. This allows flexibility to jurisdictions in providing documents that are credible, reasonably accurate, and reasonable to rely upon.

7. Regional medical waste treatment facility waste. Residual waste from a regional medical waste treatment facility can be deducted from the host jurisdiction’s reporting year disposal tonnage, if the criteria in PRC section 41782 are met. 14CCR, section 18794.2 (Annual Report regulations) requires a jurisdiction claiming a reduction in reporting year disposal from such waste to submit documentation with its annual report demonstrating how it meets the criteria in PRC section 41782. There are no guidelines specifying exactly what kind of documentation is required. This allows flexibility to jurisdictions in providing documents that are credible, reasonably accurate, and reasonable to rely upon.

41782. (a) The board may make adjustments to the amounts reported pursuant to subdivisions (a) and (c) of Section 41821.5, if the city, county, or regional agency demonstrates, and the board concurs, based on substantial evidence in the record, that achievement of the diversion requirements of Section 41780 is not feasible due to either of the following circumstances:

(1) A medical waste treatment facility, as defined in subdivision (a) of Section 25025 of the Health and Safety Code, accepts untreated medical waste, which was generated outside of the jurisdiction, for purposes of treatment, and the medical waste, when treated, becomes solid waste.

(2) (A) A regional diversion facility within the jurisdiction accepts material generated outside the jurisdiction and the conversion or processing of that material results in the production of residual solid waste that cannot feasibly be diverted. Any adjustment provided pursuant to this paragraph shall apply only to that portion of the residual solid

waste produced as a consequence of processing material that is not subject to the reporting requirements of subdivisions (a) and (c) of Section 41821.5 and that cannot feasibly be allocated to the originating jurisdiction.

(B) For purposes of granting the reduction specified in subparagraph (a), and for the purpose of calculating compliance with the diversion requirements of Section 41780, "regional diversion facility" means a facility, which meets all of the following criteria:

(1) The facility accepts material for recycling from both within and without the jurisdiction of the city or county within which it is located..

(2) All material accepted by the facility has been source-separated for the purpose of being processed prior to its arrival at the facility.

(3) The residual solid waste generated by the facility is a byproduct of the recycling that takes place at the facility.

(4) The facility is not a solid waste facility or solid waste handling operation pursuant to Section 43020 (e.g., a composting facility with a solid waste facility permit, or in the Board's Notification tier).

(5) The facility contributes to regional efforts to divert solid waste from disposal.

(b) If the board makes an adjustment pursuant to subdivision (a), the annual report required pursuant to Section 41821 by the jurisdiction, within which a medical waste treatment facility or regional diversion facility described in subdivision (a) is located, shall include all of the following information:

(1) The total amount of residual solid waste produced at the facility.

(2) The waste types and amounts in the residual solid waste that cannot feasibly be diverted.

(3) The factors that continue to prevent the waste types from being feasibly diverted.

(4) Any changes since the petition for adjustment was granted or since the last annual report.

(5) The additional efforts undertaken by the jurisdiction to divert the waste produced at the facility.

(c) Based upon the information submitted pursuant to subdivision (b), if the board finds, as part of the biennial review pursuant to Section 41825, that the residual solid waste that previously could not be diverted can now be diverted, the board shall rescind the adjustment commensurate with the amount of diversion of the residual tonnages.

(d) It is not the intent of the Legislature to exempt any solid waste facility or handling operation from periodic tracking and the reporting of disposal tonnages in accordance with the regulations adopted by the board pursuant to subdivisions (a) and (c) of Section 41821.5, or from the permitting requirements pursuant to Section 43020.

8. Restricted Wastes (agricultural wastes, inert solids, scrap metals, white goods) may count toward diversion in the original or a new base year if criteria in PRC sections 41781.2 or 41781.3 are met. Please refer to the Board's Web site at www.ciwmb.ca.gov/Statutes/PubRes.htm for the complete text. An excerpt of section 41781.2 is provided below:

41781.2. (a) (1) It is the intent of the Legislature in enacting this section not to require cities, counties, and regional agencies to revise source reduction and recycling elements prior to their submittal to the board for review and approval, except, as the elements would otherwise be required to be revised by the board pursuant to this part. Pursuant to Sections 41801.5 and 41811.5, compliance with this section shall be determined by the board when source reduction and recycling elements are submitted to the board pursuant to Section 41791.5. However, any city or county may choose to revise its source reduction and recycling element or any of its components prior to board review of the source reduction and recycling element for the purpose of complying with this section.

(2) It is further the intent of the Legislature in enacting this section to ensure that compliance with the diversion requirements of Section 41780 shall be accurately determined based upon a correlation between solid waste which was disposed of at permitted disposal facilities and diversion claims which are subsequently made for that solid waste.

(b) For the purposes of this section, the following terms have the following meaning:

"Action by a city, county, regional or local governing body" means franchise or contract conditions, rate or fee schedules, zoning or land use decisions, disposal facility permit conditions, or activities by a waste hauler, recycler, or disposal facility operator acting on behalf of a city, county, regional agency, or local governing body, or other action by the local governing body if the local government action is specifically related to the claimed diversion.

"Scrap metal" includes ferrous metals, nonferrous metals, aluminum scrap, other metals, and auto bodies, but does not include aluminum cans, steel cans, or bimetal cans.

"Inert solids" includes rock, concrete, brick, sand, soil, fines, asphalt, and unsorted construction and demolition waste.

“Agricultural wastes” includes solid wastes of plant and animal origin, which result from the production and processing of farm or agricultural products, including manures, orchard and vineyard prunings, and crop residues, which are removed from the site of generation for solid waste management. Agriculture refers to SIC Codes 011 to 0291, inclusive.

(c) For purposes of determining the base amount of solid waste from which the diversion requirements of this article shall be calculated, “solid waste” does not include the diversion of agricultural wastes; inert solids, including inert solids used for structural fill; discarded, white-coated, major appliances; and scrap metals; unless all of the following criteria are met:

(1) The city, county, or regional agency demonstrates that the material was diverted from a permitted disposal facility through an action by the city, county, or regional agency which specifically resulted in the diversion.

*(2) The city, county, or regional agency demonstrates that, prior to January 1, 1990, the solid waste which is claimed to have been diverted was disposed of at a permitted disposal facility in the quantity being claimed as diversion. If historical disposal data is not available, that demonstration may be based upon information available to the city, county, or regional agency which substantiates a reasonable estimate of disposal quantities which is as accurate as is feasible in the absence of historical disposal data. (Note: In other words, the amount of that waste type diverted from the jurisdiction in 1990 was less than or equal to the amount of that waste type disposed by the jurisdiction in any year before 1990. Please note that this criterion is applicable to the waste type as a **component of the jurisdiction’s entire waste stream, not** as a component of individual programs.)*

(3) The city, county, or regional agency is implementing, and will continue to implement, source reduction, recycling, and composting programs, as described in its source reduction and recycling element.

The restricted waste criteria set forth in PRC 41781.2(c) are commonly referred to as the local action, historical documentation, and program implementation criteria. The historical documentation and program implementation criteria are jurisdiction-specific, while the local action criterion is program-specific.

41781.3. (a) The use of solid waste for beneficial reuse in the construction and operation of a solid waste landfill, including use of alternative daily cover, which reduces or eliminates the amount of solid waste being disposed pursuant to Section 40124, shall constitute diversion through recycling and shall not be considered disposal for the purposes of this division.

[How to Count a Restricted Waste](#)

The following information applies to counting restricted waste in the original base year, a new base year, or in a reporting year generation-based study. These criteria **are in addition to** the “normally disposed” criterion that applies to **all** waste types counted toward diversion. The definitions and criteria described in PRC section 41781.2 for counting a restricted waste as diversion in the base year basically state that diversion of the four “restricted wastes” shall not count unless the jurisdiction provides documentation to the Board demonstrating how it fulfills the criteria in that section (See the “New Programs” section below). A December 29, 1993 Board document provides general guidance on the types of documents that would demonstrate the information required. A copy can be obtained from your Office of Local Assistance contact. This is not an exclusive list. If a jurisdiction has additional documentation they wish to use to substantiate how their diversion program meets the criteria, staff will consider it in making a recommendation. Ultimately, the Board will determine whether or not to accept a diversion claim; staff can only provide guidance, based on what has been accepted in the past.

Follow guidance provided in PRC section 41781.2 and the December 29, 1993 Board document. Sources of information regarding restricted waste diversion and disposal in a jurisdiction include: the jurisdiction’s Source Reduction and Recycling Element (SRRE), the Board agenda item that approved the SRRE, the jurisdiction’s files, haulers, solid waste facilities, local businesses, etc. Restricted waste analysis can be complex, so if you have any questions, contact your Office of Local Assistance representative.

The following chart provides three possible scenarios for a jurisdiction that is establishing a new base year or conducting a reporting year generation study:

IF	AND	THEN
"OLD" program (ongoing program that started before January 1, 1990)	Can now demonstrate, or have already demonstrated, that the restricted waste criteria set forth in PRC 41781.2 were met	Can count all diversion of the waste type by the program claimed for the new base year or reporting year.
"OLD" program (ongoing program that started before January 1, 1990)	Cannot demonstrate that the restricted waste criteria set forth in PRC 41781.2 were met	Can only count that amount of diversion of the waste type by the program that is more than what was being diverted by the program in 1990 , i.e., (new base year or reporting year diversion) – (1990 diversion*) = diversion credit allowed for new base year or reporting year.
"NEW" program (Program that started on or after January 1, 1990)	Can provide documentation demonstrating that the program is "new"	Can count all diversion of the waste type by the program claimed for the new base year or reporting year.

* Include the total amount of 1990 diversion of the waste type by the program, and whether or not the Board denied diversion credit for the program in the past.

New Programs: A "new" program is a program that started on or after January 1, 1990. "New" programs do not have to meet the restricted waste criteria; however, the jurisdiction must provide documentation that the program is new. A "new" program is not just a new project for the same company that was operating the program before 1990 (for example, a company repairing roads reused asphalt from Avenue A before 1990, and worked on Avenue Z in the new base year). In addition, the diversion of a restricted waste should be representative of a "normal" year for the jurisdiction, e.g., diverting a large amount of C&D debris resulting from the destruction of an army base in one year would not be "representative." 14 CCR sec. 18722 (h) (2) states:

"A Solid Waste Generation Study shall be representative of all residential, commercial, industrial and other sources of waste generation in the jurisdiction. It shall also be representative of all solid waste source reduction, recycling, composting, transformation and disposal activities and facilities in the jurisdiction or used by the jurisdiction and its residents and businesses."

9. Sludge. PRC section 41781.1 and 14CCR section 18775.2 specify the conditions for counting the diversion of sludge. Sludge disposal and diversion can only be counted by the jurisdiction "hosting" the treatment facility; sludge diversion or disposal cannot be allocated back to the "contributing" jurisdictions, since it was not a "solid waste" until treated at the treatment facility.

41781.1. (a) Prior to determining that the diversion of sludge may be counted toward the diversion requirements established under Section 41780, but within 180 days of receiving such a request, the board shall do both of the following:

(1) Make a finding at a public hearing, based upon substantial evidence, that the sludge has been adequately analyzed and will not pose a threat to public health or the environment for the reuse which is proposed.

(A) Except as provided in subparagraph (B), prior to making the finding required to be made pursuant to this paragraph, the board shall consult with each of the following agencies, and obtain their concurrence in the finding, to the extent of each agency's jurisdiction over the sludge or its intended reuse:

(i) The state water board and the regional water boards.

(ii) The State Department of Health Services.

(iii) The State Air Resources Board and air pollution control districts and air quality management districts.

(iv) The Department of Toxic Substances Control.

(B) If, prior to the board making the finding required to be made pursuant to this paragraph, an agency specified in subparagraph (A) issues a permit, waste discharge requirements, or imposes other conditions for the reuse of sludge, the agency shall have been deemed to have concurred in that finding.

(2) Establish, or ensure that one or more of the agencies specified in subparagraph (A) of paragraph (1) establishes, ongoing monitoring requirements which ensure that the proposed sludge reuse does not pose a threat to health and safety or the environment.

(b) It is not the intent of this section to require the board, or the agencies listed in subparagraph (A) of paragraph (1) of subdivision (a), to impose additional requirements or approval procedures for sludge or sludge reuse applications, apart from the requirements and approval procedures already imposed by state and federal law. It is the intent of this section to require that the board determine that each sludge diversion, for which diversion credit is sought, meets all applicable requirements of state and federal law, and thereby provides for maximum protection of the public health and safety and the environment.

14 CCR Article 7, Section 18775.2:

(a) Jurisdictions that wish to claim diversion of the waste type "sludge" shall submit a written request to the Board pursuant to PRC Section 41781.1. Within 45 days of receipt of a jurisdiction's request, the Board shall notify the jurisdiction in writing whether sufficient information has been included in the request to enable the Board to make findings pursuant to PRC Section 41781.1. Requests that are found by the Board to be incomplete, pursuant to the criteria set forth in this section, shall be revised by the jurisdiction to correct any inadequacy. The Board shall make the findings required by PRC Section 41781.1 at a public hearing no later than 180 days after receipt of a complete request for sludge diversion credit.

(1) A request for allowing sludge diversion shall include the following information:

(A) Description of the selected diversion alternative(s);

(B) Projected annual quantity of sludge waste to be diverted through the year 2000;

(C) Documentation that the waste type "sludge" has been categorized, quantified, and documented in the applicable "solid waste generation study" as defined in Section 18722 of this Chapter;

(D) Written certification from the agent(s) responsible for implementing the sludge diversion alternative that the intended sludge reuse meets all applicable requirements of state and federal law. Information upon which the above certification is based shall be made available to the Board or other state agency upon request.

(E) Description of the monitoring program(s) that are in place or which will be established to insure that the sludge diversion alternative will not pose a threat to public health or the environment.

(F) If the sludge diversion alternative receives a permit or is identified under an existing permit, waste discharge requirements, or has other conditions imposed by one or more of the agencies specified in PRC Section 41781.1, include the name of the agency(s) and identify the agency identification code or number for the permit, waste discharge requirements, or other imposed conditions.

10. Special waste. Special waste is defined in Board regulations [Article 3.0, section 18720 (a)(73)] to include:

“any solid waste which, because of its source of generation, physical, chemical, or biological characteristics or unique disposal practices, is specifically conditioned in a solid waste facilities permit (SWFP) for handling and/or disposal.”

Some examples of special waste are listed in Board regulations, Article 6.1, section 18722 (j)(8):

“. . .ash, sewage sludge; industrial sludge; asbestos; auto shredder waste; auto bodies; and other special wastes (like dead animals).”

The definition also states that special waste is:

“. . .any hazardous waste listed in Section 66740 of Title 22 of the CCR, or any waste which has been classified as a special waste pursuant to Section 66744 of Title 22 of the CCR, or which has been granted a variance for the purpose of storage, transportation, treatment, or disposal by the Dept. of Health Services pursuant to Section 66310 of Title 22 CCR. . . .”

Special waste can be counted toward diversion ONLY if the waste was “normally disposed” by a jurisdiction in their base year. If a special waste was “banned” from landfill disposal in the base year, then it does not meet the requirement of “normally disposed,” hence, its diversion does not count.

In a March 13, 2000 letter to jurisdictions, the Board clarified its policy regarding disposal corrections (deductions) for non-hazardous designated waste; i.e., waste often sent to Class II disposal facilities. The Board has since developed a procedure for jurisdictions wishing to petition the Board for disposal corrections for non-hazardous designated waste, if the criteria described below are met:

- a) The landfill provides the jurisdiction with material type-specific disposal tonnage;
- b) The landfill operator is prohibited from diverting the material for beneficial use because of a directive from a Regional Water Quality Control Board, or an Air Pollution Control District, as applicable;
- c) The jurisdiction submits information about the material’s disposal, as outlined in the Board's Reporting Year Tonnage Modification Request form (section 1, and subsections A.2, 3, 4, and 14 of section II), including the document from the landfill identifying the material type-specific disposal tonnage.

Examples of non-hazardous designated waste types that are often prohibited from being diverted for beneficial use are: auto shredder fluff, contaminated soil, and non-friable asbestos.

11. Tires. There are no statutes or regulations that specifically address restrictions on counting the diversion of tires. However, the policy on when tire diversion can count has been drawn from statutes on transformation and biomass conversion, and Board regulations addressing “normally disposed” and “Solid Wastes Countable Towards Diversion.”

Specifically, if tires were not “normally” disposed in the landfills used by the jurisdiction in the base year (e.g., if there was a landfill ban against tire disposal), then diverting tires would not count toward their diversion. Also, 14 CCR section 18722 (m) (1) “Solid Wastes Countable Towards Diversion” states:

*For purposes of determining the quantity and types of solid wastes diverted in a Solid Waste Generation Study, only those solid wastes which are normally disposed of at permitted solid waste landfills **or permitted solid waste transformation facilities,*** and which are allowed to be counted toward the statutory diversion mandates pursuant to Sections 41781 (a) and (b) of the PRC, as amended, shall be included*

*Only Board-permitted Waste-to-Energy (WTE) facilities are considered to be “permitted solid waste transformation facilities,” so only tires burned at WTE facilities in Stanislaus County, City of Long Beach, or City of Commerce would “count” toward diversion as transformation, and then only toward the 50 percent diversion goal. However, tires that are burned at other facilities leave gypsum and steel as by-products. If these resulting materials are diverted, that

can be counted toward diversion (if, of course, gypsum and steel were “normally disposed” in the jurisdiction’s base year). Also, because tires do not meet the statutory definition of biomass (PRC section 40106), the burning of tires is not considered biomass conversion.

However, if tires were “normally disposed” as defined in 14CCR section 18720 (a) (44) in a jurisdiction’s base year, then tires that are diverted from a landfill by means other than transformation, can be counted toward diversion (e.g., retreading, recapping, or shredding and used as rubberized asphalt).

12. Transformation, as defined in PRC section 40201, will **only count toward the year 2000 diversion goal of 50 percent, and only if biomass conversion is not also counted toward the jurisdiction’s diversion rate**; specifications are described in sections 41783, 41784, and 41786.

PRC Section 40201. Transformation means: “incineration, pyrolysis, distillation, gasification, or biological conversion other than composting. “Transformation” does not include composting or biomass conversion.”

41783. For any city, county, or regional agency source reduction and recycling element submitted to the board after January 1, 1995, the 50 percent diversion requirement specified in paragraph (2) of subdivision (a) of Section 41780 may include not more than 10 percent through transformation, as defined in Section 40201, if all of the following conditions are met:

(a) The transformation project is in compliance with Sections 21151.1 and 44150 of this code and Section 42315 of the Health and Safety Code.

(b) The transformation project uses front-end methods or programs to remove all recyclable materials from the waste stream prior to transformation to the maximum extent feasible.

(c) The ash or other residue generated from the transformation project is routinely tested at least once quarterly, or on a more frequent basis as determined by the agency responsible for regulating the testing and disposal of the ash or residue, and, notwithstanding Section 25143.5 of the Health and Safety Code, if hazardous wastes are present, the ash or residue is sent to a class 1 hazardous waste disposal facility.

(d) The board holds a public hearing in the city, county, or regional agency jurisdiction within which the transformation project is proposed, and, after the public hearing, the board makes both of the following findings, based upon substantial evidence on the record:

(1) The city, county, or regional agency is, and will continue to be, effectively implementing all feasible source reduction, recycling, and composting measures.

(2) The transformation project will not adversely affect public health and safety or the environment.

(e) The transformation facility is permitted and operational on or before January 1, 1995.

(f) The city, county, or regional agency does not include biomass conversion, as authorized pursuant to Section 41783, in its source reduction and recycling element.

Historical Background:

The question of “what counts” has evolved from the relatively simple statutes in AB 939 (e.g., if a waste was normally disposed, it could count toward diversion, except for agricultural wastes and inert solids), to the multi-faceted requirements of today. Subsequent bills, including AB 1820 and AB 2494, introduced restrictions and criteria for counting the diversion of specific waste types, including agricultural wastes and inert solids, and added other “restricted” waste types, such as scrap metals and white goods, and sludge.

PRC section 41781 in the original AB 939 states that:

For the purpose of determining the base rate of solid waste from which recycling levels shall be calculated, "solid waste" includes only the following:

Materials in the waste stream generated within a (jurisdiction) which are normally disposed of at a landfill or transformation facility;

The amount of solid waste diverted from a landfill or transformation facility through source reduction, recycling, or composting.

For the purposes of this section, "solid waste" does not include: agricultural wastes; inert solids; or other waste products, which would not normally be disposed of at a landfill or transformation facility.

There were no criteria or conditions under which the base-year diversion of these materials would count.

AB 1820, effective in June, 1990, revised PRC section 41781, by adding certain conditions for the base-year diversion of certain materials. Specifically:

"Solid waste" does not include any of the following:

Agricultural wastes, except agricultural wastes which were disposed of at a permitted disposal facility as of January 1, 1990, which are diverted, and which are recycled, (composted), or reused;

Inert solids, including inert solids used for structural fill, except inert solids which were disposed of at a permitted disposal facility as of January 1, 1990, which are diverted, and which are recycled or reused for paving materials or other construction-related materials;

Scrap metals, except scrap metals which were disposed of at a permitted disposal facility as of January 1, 1990, which are diverted, and which are recycled or reused;

Discarded, white-coated major appliances, except those discarded, white-coated major appliances which were disposed of at a permitted disposal facility as of January 1, 1990, which are diverted, and which are recycled, or refurbished and reused;

Sludge. [this section was replaced later, with PRC section 41781.1.]*

Another waste product which would not normally be disposed of at a landfill or transformation facility.

The current statutory guidelines for counting the diversion of "restricted wastes" were added in AB 2494 in section 41781.2. That bill modified the criteria for counting the base-year diversion of these materials, and also defined some of the terms used in the criteria.

PRC section 41780 describes the 25 and 50 percent diversion requirement:

41780. (a) Each city or county source reduction and recycling element shall include an implementation schedule which shows both of the following:

(1) For the initial element, the city or county shall divert 25 percent of all solid waste from landfill disposal or transformation by January 1, 1995, through source reduction, recycling, and composting activities.

(2) Except as provided in Sections 41783, 41784, and 41785, for the first revision of the element, the city or county shall divert 50 percent of all solid waste by January 1, 2000, through source reduction, recycling, and composting activities.

(b) Nothing in this part prohibits a city or county from implementing source reduction, recycling, and composting activities designed to exceed these goals.

PRC sections 41780.1 and 41780.2 describe the method jurisdictions (and regions) are to use to calculate their diversion rates:

41780.1. (a) Notwithstanding any other requirement of this part, for the purposes of determining the amount of solid waste that a regional agency is required to divert from disposal or transformation through source reduction, recycling, and composting to meet the diversion requirements of Section 41780, the regional agency shall use the

solid waste disposal projections in the source reduction and recycling elements of the regional agency's member agencies. The method prescribed in Section 41780.2 shall be used to determine the maximum amount of disposal allowable to meet the diversion requirements of Section 41780.

(b) Notwithstanding any other requirement of this part, for the purposes of determining the amount of solid waste that a city or county is required to divert from disposal or transformation through source reduction, recycling, and composting to meet the diversion requirements of Section 41780, the city or county shall use the solid waste disposal projections in the source reduction and recycling elements of the city or county. The method prescribed in Section 41780.2 shall be used to determine the maximum amount of disposal allowable to meet the diversion requirements of Section 41780.

(c) To determine achievement of the diversion requirements of Section 41780 in 1995 and in the year 2000, projections of disposal amounts from the source reduction and recycling elements shall be adjusted to reflect annual increases or decreases in population and other factors affecting the waste stream, as determined by the board. By January 1, 1994, the board shall study the factors which affect the generation and disposal of solid waste and shall develop a standard methodology and guidelines to be used by cities, counties, and regional agencies in adjusting disposal projections as required by this section.

(d) The amount of additional diversion required to be achieved by a regional agency to meet the diversion requirements of Section 41780 shall be equal to the sum of the diversion requirements of its member agencies. To determine the maximum amount of disposal allowable for the regional agency to meet the diversion requirements of Section 41780, the maximum amount of disposal allowable for each member agency shall be added together to yield the agency disposable maximum.

41780.2. (a) Each city, county, or member agency of a regional agency shall determine the amount of reduction in solid waste disposal and the amount of additional diversion required from the base-year amounts by using the methods set forth in this section.

(b) The city, county, or member agency of a regional agency shall multiply the total amount of base-year solid waste generation, as adjusted using the methods described in subdivision (c) of Section 41780.1, by 0.75 to determine the maximum amount of total disposal allowable in 1995 to meet the diversion requirements of Section 41780.

(c) The city, county, or member agency of a regional agency shall multiply the total amount of base-year solid waste generation, as adjusted using the methods described in subdivision (c) of Section 41780.1, by 0.50 to determine the maximum amount of total disposal allowable in the year 2000 to meet the diversion requirements of Section 41780.

(d) The city, county, or member agency of a regional agency shall multiply the total amount of base-year solid waste generation, as adjusted using the methods described in subdivision (c) of Section 41780.1, by 0.25 to determine the minimum amount of total diversion needed in the year 1995 to meet the diversion requirements of Section 41780.

(e) The city, county, or member agency of a regional agency shall multiply the total amount of base-year solid waste generation, as adjusted using the methods described in subdivision (c) of Section 41780.1, by 0.50 to determine the minimum amount of total diversion needed in the year 2000 to meet the diversion requirements of Section 41780.

(f) The city, county, or member agency of a regional agency shall subtract the total amount of base-year existing diversion from the minimum total diversion required as determined in subdivision (d) or (e) to determine the amount of additional diversion needed to meet the diversion requirements of Section 41780. This amount of additional diversion shall be equal to the minimum amount of additional reduction in disposal amounts which is needed to comply with Section 41780.

PRC section 41785 discusses the process for establishing an alternate diversion rate:

41785. (a) On and after January 1, 1995, and upon the request of a city or county, the board may establish an alternative source reduction, recycling, and composting requirement to the 50-percent requirement established under Section 41780, not to exceed three years unless another alternative requirement is granted by the board, if the board holds a public hearing and makes both of the following findings based upon substantial evidence on the record:

(1) The city or county and has made a good faith effort to effectively implement the source reduction, recycling, and composting measures described in its board approved source reduction and recycling element and has demonstrated progress toward meeting the alternative requirement as described in its annual reports to the board and the city or county has been unable to meet the 50-percent diversion requirement despite implementing those measures.

(2) The alternative source reduction, recycling, and composting requirement represents the greatest diversion amount that the city or county, may reasonably and feasibly achieve.

(b) In making the decision whether to grant an alternative requirement pursuant to subdivision (a) and in determining the amount of the alternative requirement, the board shall consider circumstances in the city or county that support the request for an alternative requirement, such as waste disposal patterns within the city or county and the types of residential and nonresidential waste disposed by the city or county. The city or county may provide the board with any additional information that the city or county determines to be necessary to demonstrate to the board the need for the alternative requirement.

(c) If a city or county that requests an alternative source reduction and recycling requirement to the 50-percent requirement has not previously requested an extension pursuant to Section 41820, the city or county shall provide information to the board that explains why it has not requested an extension.

(d) A city or county that has previously been granted an alternative source reduction, recycling, and composting requirement may request another alternative source reduction, recycling, and composting requirement. A city or county that requests such another alternative requirement shall provide information to the board that demonstrates that the circumstances that supported the previous alternative source reduction, recycling, and composting requirement continue to exist or shall provide information to the board that describes changes in those previous circumstances that support another alternative source reduction, recycling, and composting requirement. The board shall review the original circumstances that supported the city or county's request, as well as any new information provided by the city or county that describes the current circumstances, to determine whether to grant another alternative requirement. The board may approve another alternative requirement if the board holds a public hearing and makes both of the following findings based upon substantial evidence in the record:

(1) The city or county has made a good faith effort to effectively implement the source reduction, recycling, and composting measures described in its board approved source reduction and recycling element and has demonstrated progress toward meeting the alternative requirement as described in its annual reports to the board.

(2) The alternative source reduction, recycling, and composting requirement represents the greatest diversion amount the city or county may reasonably and feasibly achieve.

(e) If the board establishes a new alternative requirement or rescinds the existing alternative requirement, the board shall do so at a public hearing. If the board establishes an alternative requirement, it shall make both of the following findings based upon substantial evidence in the record:

(1) The city or county has made a good faith effort to effectively implement the source reduction, recycling, and composting measures described in its board approved source reduction and recycling element and has demonstrated progress toward meeting the alternative requirement as described in its annual reports to the board and that the alternative diversion requirement is no longer appropriate.

(2) The new requirement represents the greatest amount of diversion that the city or county may reasonably and feasibly achieve.

(f) (1) No single alternative requirement may be granted for a period that exceeds three years and, if after the granting of the original alternative requirement, another alternative requirement is granted, the combined period that the original and the new alternative requirement is in force and effect shall not exceed a total of five years.

(2) Any alternative requirement that is granted prior to January 1, 2000, shall become effective on January 1, 2000. The board shall require any city or county granted an alternative requirement prior to January 1, 2000, to comply with this section after the date that the alternative requirement is granted.

(3) No alternative requirement shall be granted for any period after January 1, 2006, and no alternative requirement shall be effective after January 1, 2006.

(4) No city or county shall be granted an alternative requirement if the city or county has failed to meet, on or before July 1, 1998, the applicable requirements of Chapter 2 (commencing with Section 41000), Chapter 3 (commencing with Section 41300), Chapter 3.5 (commencing with Section 41500), and Chapter 4.5 (commencing with Section 41730).

(g) (1) When considering a request for an alternative source reduction, recycling, and composting requirement, the board may make specific recommendations for the implementation of alternative programs.

(2) Nothing in this section precludes the board from disapproving any request for an alternative requirement.

(3) If the board disapproves a request for an alternative requirement, the board shall specify its reasons for disapproval.

(h) If the board grants an alternative source reduction, recycling, and composting requirement, the city or county may request technical assistance from the board to assist it in meeting the alternative source reduction, recycling, and composting requirement. If requested by the city or county, the board shall assist with identifying model policies and programs implemented by other jurisdictions of similar size, geography, and demographic mix.

(i) A city or county that is granted an alternative requirement pursuant to this section shall continue to implement source reduction, recycling, and composting programs, and shall report the status of those programs in the report required pursuant to Section 41821.

(j) This section shall remain in effect until January 1, 2006, and as of that date is repealed.

Appendix I

Weight Conversion Sources and Table

Appendix I - Conversion Factor Sources

The following studies have been identified as potential sources of conversion factors. The weights provided in the referenced studies may not be representative of every jurisdiction within the state and should be used only if they accurately reflect the weight of items and materials submitted in the jurisdiction's diversion study. The new base-year study proposal should include a discussion of the applicability of any conversion factors used and the source for the conversion factors used.

General Studies

Business Waste Prevention Quantification Methodologies—Business Users Guide. Washington, D.C and Los Angeles: U.S. Environmental Protection Agency, Municipal and Industrial Solid Waste, and University of California at Los Angeles, Extension Recycling and Municipal Solid Waste Management Program, 1996. Grant Number CX 824548-01-0. This guide includes weight of paper office products, office furniture, and computers. Copies of this study are available from the CIWMB Office of Local Assistance.

Measuring Recycling: A Guide For State and Local Governments. Washington, D.C.: U. S. Environmental Protection Agency, 1997: Phone 1-800-424-9346; <http://www.epa.gov>. Publication number EPA530-R-97-011. This guide includes weights of items including glass, metals, paper, plastics, textiles, tires, organics, and municipal solid waste. For material types listed in both the U.S. EPA and Cal Recovery/Tellus studies, the more current factors in the U.S. EPA study should be used.

Conversion Factors for Individual Material Types Submitted to California Integrated Waste Management Board. Cal Recovery Inc., Tellus Institute, and ACT...now, December 1991. Copies of this study are available from the CIWMB Office of Local Assistance. This study includes weights of paper, plastics, glass, metals, organics, tires and rubber products, crop residues, textiles, and inerts. For material types listed in both the U.S. EPA and Cal Recovery/Tellus studies, the more current factors in the U.S. EPA study should be used.

FEECO International Handbook, 8th Printing (Section 22-45 to 22-510). Green Bay, Wisconsin: FEECO International, Inc. Phone (920) 468-1000; FAX (920) 469-5110. This handbook includes weights of items including construction and demolition materials, plastics, paper, organics, textiles, and metals.

Grasscycling

These studies may not be applicable for communities in arid or snowy climates. Jurisdictions should provide justification for using these conversion factors. Jurisdictions should conduct a statistically significant survey to determine the number of households participating in grasscycling. Some households practice both grasscycling and backyard composting. Surveys should be designed to avoid double counting.

Harivandi, M. A., et al., "Grasscycling in California," *California Turfgrass Culture*, Vol. 46, Nos. 1 and 2, 1996, p. 1. Copies of this study are available from the CIWMB Office of Local Assistance.

Hartin, Janet, and J. Michael Henry, "Reusing Turfgrass Clippings To Improve Turfgrass Health and Performance," University of California Cooperative Extension, ND. Copies of this study are available from the CIWMB Office of Local Assistance.

Residential Composting Studies

These studies may not be applicable for communities in arid or snowy climates. Jurisdictions should provide justification for using these conversion factors. Jurisdictions should conduct a statistically significant survey to determine the number of households participating in backyard composting. Some households practice both grasscycling and backyard composting. Surveys should be designed to avoid double counting.

"Source Reduction Through Home Composting," Alameda County Waste Management Authority Home Composting Survey. Summary published in *Biocycle*, April 1992. This study calculates weight for residential composting activity.

"Home Composting with the Soilsaver: An Empirical Study of Waste Diversion in the Regional Municipality of Hamilton-Wentworth, Ontario." Summary published in *Resource Recycling*, December 1991. This study calculates weight for residential composting activity.

Thrift Store and Garage Sale Activity

To calculate diversion tonnage for thrift store and garage sale activities, a jurisdiction should conduct a survey and provide a reasonable estimate with supporting documentation.

Weight Conversion Table

The weights in the following tables are from grant-funded, contractually funded, or privately funded studies.

Material/Item	Size/Amount	Study	LB
Construction and Demolition			
Please refer to Appendix I, "What Counts Toward Diversion" to determine if these items qualify			
Ashes, dry	1 cubic foot	FEECO	35–40
Ashes, wet	1 cubic foot	FEECO	45–50
Asphalt, crushed	1 cubic foot	FEECO	45
Asphalt/paving, crushed	1 cubic yard	Tellus	1,380
Asphalt/shingles comp, loose	1 cubic yard	Tellus	418.5
Asphalt/tar roofing	1 cubic yard	Tellus	2,919
Bone meal, raw	1 cubic foot	FEECO	54.9
Brick, common hard	1 cubic foot	FEECO	112–125
Brick, whole	1 cubic yard	Tellus	3,024
Cement, bulk	1 cubic foot	FEECO	100
Cement, mortar	1 cubic foot	FEECO	145
Ceramic tile, loose 6"x 6"	1 cubic yard	Tellus	1,214
Chalk, lumpy	1 cubic foot	FEECO	75–85
Charcoal	1 cubic foot	FEECO	15–30
Clay, kaolin	1 cubic foot	FEECO	22–33
Clay, potter's dry	1 cubic foot	FEECO	119
Concrete, cinder	1 cubic foot	FEECO	90–110
Concrete, scrap, loose	1 cubic yard	Tellus	1,855
Cork, dry	1 cubic foot	FEECO	15
Earth, common, dry	1 cubic foot	FEECO	70–80
Earth, loose	1 cubic foot	FEECO	76
Earth, moist, loose	1 cubic foot	FEECO	78
Earth, mud	1 cubic foot	FEECO	104–112
Earth, wet, containing clay	1 cubic foot	FEECO	100–110
Fiberglass insulation, loose	1 cubic yard	Tellus	17
Fines, loose	1 cubic yard	Tellus	2,700
Glass, broken	1 cubic foot	FEECO	80–100
Glass, plate	1 cubic foot	FEECO	172
Glass, window	1 cubic foot	FEECO	157
Granite, broken or crushed	1 cubic foot	FEECO	95–100
Granite, solid	1 cubic foot	FEECO	130–166
Gravel, dry	1 cubic foot	FEECO	100
Gravel, loose	1 cubic yard	Tellus	2,565
Gravel, wet	1 cubic foot	FEECO	100–120
Gypsum, pulverized	1 cubic foot	FEECO	60–80

Material/Item	Size/Amount	Study	LB
Gypsum, solid	1 cubic foot	FEECO	142
Lime, hydrated	1 cubic foot	FEECO	30
Limestone, crushed	1 cubic foot	FEECO	85–90
Limestone, finely ground	1 cubic foot	FEECO	99.8
Limestone, solid	1 cubic foot	FEECO	165
Mortar, hardened	1 cubic foot	FEECO	100
Mortar, wet	1 cubic foot	FEECO	150
Mud, dry close	1 cubic foot	FEECO	110
Mud, wet fluid	1 cubic foot	FEECO	120
Pebbles	1 cubic foot	FEECO	90–100
Pumice, ground	1 cubic foot	FEECO	40–45
Pumice, stone	1 cubic foot	FEECO	39
Quartz, sand	1 cubic foot	FEECO	70–80
Quartz, solid	1 cubic foot	FEECO	165
Rock, loose	1 cubic yard	Tellus	2,570
Rock, soft	1 cubic foot	FEECO	100–110
Sand, dry	1 cubic foot	FEECO	90–110
Sand, loose	1 cubic yard	Tellus	2,441
Sand, moist	1 cubic foot	FEECO	100–110
Sand, wet	1 cubic foot	FEECO	110–130
Sewage, sludge (see Appendix I)	1 cubic foot	FEECO	40–50
Sewage, dried sludge (see Appendix I)	1 cubic foot	FEECO	35
Sheetrock scrap, loose	1 cubic yard	Tellus	393.5
Slag, crushed	1 cubic yard	Tellus	1,998
Slag, loose	1 cubic yard	Tellus	2,970
Slag, solid	1 cubic foot	FEECO	160–180
Slate, fine ground	1 cubic foot	FEECO	80–90
Slate, granulated	1 cubic foot	FEECO	95
Slate, solid	1 cubic foot	FEECO	165–175
Sludge, raw sewage (see Appendix I)	1 cubic foot	FEECO	64
Soap, chips	1 cubic foot	FEECO	15–25
Soap, powder	1 cubic foot	FEECO	20–25
Soap, solid	1 cubic foot	FEECO	50
Soil/sandy loam, loose	1 cubic yard	Tellus	2,392
Stone or gravel	1 cubic foot	FEECO	95–100
Stone, crushed	1 cubic foot	FEECO	100
Stone, crushed, size reduced	1 cubic yard	Tellus	2,700

Material/Item	Size/Amount	Study	LB
Stone, large	1 cubic foot	FEECO	100
Wax	1 cubic foot	FEECO	60.5
Wood ashes	1 cubic foot	FEECO	48
Glass			
Glass, broken	1 cubic foot	FEECO	80–100
Glass, broken	1 cubic yard	FEECO	2,160.00
Glass, crushed	1 cubic foot	FEECO	40–50.0
Glass, plate	1 cubic foot	FEECO	172
Glass, window	1 cubic foot	FEECO	157
Glass, 1 gallon jug	each	U.S. EPA	2.10–2.80
Glass, beer bottle		U.S. EPA	0.53
Glass, beverage—8 oz	1 bottle	U.S. EPA	0.5
Glass, beverage—8 oz	1 case = 24 bottles	U.S. EPA	12
Glass, beverage—12 oz	1 case = 24 bottles	U.S. EPA	22
Glass, wine bottle		U.S. EPA	1.08
Plastic			
Film plastic/mixed, loose	1 cubic yard	Tellus	22.55
HDPE film plastics, semi-compacted	1 cubic yard	Tellus	75.96
LDPE film plastics, semi-compacted	1 cubic yard	Tellus	72.32
HDPE, common beverage containers			
Plastic, HDPE juice, 8 oz.	8 oz.	U.S. EPA	0.1
Plastic, 1 gallon HDPE jug	1 gallon	U.S. EPA	0.33
Plastic, 1 gallon HDPE beverage container	milk/juice	U.S. EPA	0.19–0.25
PETE, common beverage containers			
Plastic, 1 liter PETE beverage bottle w/o cap	1 liter	U.S. EPA corr.	0.09
Plastic, PETE water bottle	50 oz. (over 1.5 liters)	U.S. EPA	0.12
Plastic, PETE, 2 liter	1 bottle	U.S. EPA	0.13
Plastic containers			
Plastic, 1 gallon container—mayo	1 gallon	U.S. EPA	0.42
Plastic, 1/2 gallon plastic beverage cont	1/2 gallon	U.S. EPA	0.09
Plastic, beverage container	12 oz.	U.S. EPA	0.05
Miscellaneous plastic items			
Plastic, bubble wrap	33 gallons	U.S. EPA	3
Plastic, bucket	25 gallons	U.S. EPA	1.1
Plastic, bucket w/metal handle	5 gallons	U.S. EPA	1.9
Plastic, cake decorator's boxes	each	U.S. EPA	0.63

Material/Item	Size/Amount	Study	LB
Plastic, grocery bag	100 bags	U.S. EPA corr.	0.77
Plastic, HDPE 10–12 fluid oz.		U.S. EPA	0.05
Plastic, HDPE beverage case		U.S. EPA	1.2
Plastic, HDPE bread case		U.S. EPA	1.5
Plastic, HDPE gallon containers (not beverage)	1 gallon	U.S. EPA	0.06
Plastic, HDPE (auto) oil container	1 quart size	U.S. EPA	0.2
Plastic, pot	1 qt size	U.S. EPA	0.25
Plastic, mixed HDPE & PET	1 cubic yard	U.S. EPA	32
Plastic, pallet, 48" x 48"		U.S. EPA	40
Plastic, sheeting	square yard	U.S. EPA	1
Plastic, whole, uncompacted PET	1 cubic yard	U.S. EPA	30–40
Polyethylene, resin pellets	1 cubic foot	FEECO	30–35
Polystyrene beads	1 cubic foot	FEECO	40
Polystyrene, packaging	33 gallon	USEPA	1.5
Styrofoam kernels	1 cubic yard	Tellus	6.27
Polystyrene, blown formed foam	1 cubic yard	Tellus	9.62
Polystyrene, rigid, whole	1 cubic yard	Tellus	21.76
PVC, loose	1 cubic yard	Tellus	341.12
Paper			
Books, hardback, loose	1 cubic yard	Tellus	529.29
Books, paperback, loose	1 cubic yard	Tellus	427.5
Egg flats	one dozen	U.S. EPA	0.12
Egg flats	12"x12"	U.S. EPA	0.5
Paper sacks	25# size	U.S. EPA	0.5
Paper sacks	50# dry goods	U.S. EPA	1
Calendars/books	1 cubic foot	FEECO	50
Catalogs	100 pages ledger	U.S. EPA	1
Computer printout, loose	1 cubic yard	U.S. EPA	655
Mixed paper, loose (construction, fax, manila, some chipboard)	1 cubic yard	U.S. EPA	363.5
Mixed paper, compacted (construction, fax, manila, some chipboard)	1 cubic yard	U.S. EPA	755
Office paper (white, color, CPO, junk mail)	13 gallon	U.S. EPA	10.01
Office paper (white, color, CPO, junk mail)	33 gallon	U.S. EPA	25.41
Office paper (white, color, CPO, junk mail)	55 gallon	U.S. EPA	42.35
Shredded paper	33 gallons	U.S. EPA	8
White ledger paper	12" stack	U.S. EPA	12
White ledger #20, 8.5" x 11"	1 ream (500 sheets)	U.S. EPA	5
White ledger #20, 8.5"x 14"	1 ream (500 sheets)	U.S. EPA	6.4

Material/Item	Size/Amount	Study	LB
White ledger w/o CPO, loose	1 cubic yard	Tellus	363.51
White ledger, uncompacted stacked	1 cubic yard	U.S. EPA	400
White ledger, compacted stacked	1 cubic yard	U.S. EPA	800
Colored message pads	1 carton (144 pads)	U.S. EPA	22
Padded envelope	9" x 12"	U.S. EPA	0.88
Magazines, 8.5" x 11"	10 units	U.S. EPA	3
Manila envelope	1 cubic foot	FEECO	37
Newspapers	12" stack	U.S. EPA	35
Newspapers	1 cubic foot	FEECO	38
Newspapers, loose	1 cubic yard	U.S. EPA	400
Newspapers, stacked	1 cubic yard	U.S. EPA	875
Phone book	Ventura	U.S. EPA	4
Paper pulp, stock	1 cubic foot	FEECO	60–62.00
Tab cards, uncompacted	1 cubic yard	U.S. EPA	605
Tab cards, compacted	1 cubic yard	U.S. EPA	1,275.00
Yellow legal pads	1 case (72 pads)	U.S. EPA	38
Chipboard			
Chipboard, beverage case	4 pack	U.S. EPA	0.1
Chipboard, beverage case	6 pack	U.S. EPA	0.2
Chipboard, cereal box	average	U.S. EPA	0.15
Chipboard, fabric bolt		U.S. EPA	0.69
Paperboard/boxboard/chipboard whole	1 cubic yard	Tellus	21.5
OCC			
OCC, beverage case	4 six-packs, full case	U.S. EPA corr.	0.99
OCC, box, large	48" x 48" x 60"	U.S. EPA	4
OCC, box, medium	24" x 24" x 30"	U.S. EPA	2.2
OCC, box, small	12" x 12" x 15"	U.S. EPA	1.1
OCC, flattened boxes, loose	1 cubic yard	Tellus	50.08
OCC, stacked	1 cubic yard	U.S. EPA	50
OCC, whole boxes	1 cubic yard	Tellus	16.64
OCC, uncompacted	1 cubic yard	U.S. EPA	100
OCC, compacted	1 cubic yard	U.S. EPA	400
Organics			
Yard trimmings, mixed	1 cubic yard	USEPA	108
Yard trimmings, mixed	40 cubic yards	U.S. EPA	4,320
Grass	33 gallons	U.S. EPA	25
Grass	3 cubic yards	U.S. EPA	840

Material/Item	Size/Amount	Study	LB
Grass & leaves	3 cubic yards	U.S. EPA	325
Large limbs & stumps	1 cubic yard	Tellus	1,080
Leaves, dry	1 cubic yard	Tellus	343.7
Leaves	33 gallons	U.S. EPA	12
Leaves	3 cubic yards	U.S. EPA	200–250
Pine needles, loose	1 cubic yard	Tellus	74.42
Prunings, dry	1 cubic yard	Tellus	36.9
Prunings, green	1 cubic yard	Tellus	46.69
Prunings, shredded	1 cubic yard	Tellus	527
Other Organic			
Hay, baled	1 cubic foot	FEECO	24
Hay, loose	1 cubic foot	FEECO	5
Straw, baled	1 cubic foot	FEECO	24
Straw, loose	1 cubic foot	FEECO	3
Compost	1 cubic foot	FEECO	30–50
Compost, loose	1 cubic yard	Tellus	463.39
Food			
Bread, bulk	1 cubic foot	FEECO	18
Fat	1 cubic foot	FEECO	57
Fats, solid/liquid (cooking oil)	1 gallon	U.S. EPA	7.45
Fats, solid/liquid (cooking oil)	55 gallon drum	U.S. EPA	410
Fish, scrap	1 cubic foot	FEECO	40–50
Meat, ground	1 cubic foot	FEECO	50–55
Oil, olive	1 cubic foot	FEECO	57.1
Oyster shells, whole	1 cubic foot	FEECO	75–80
Produce waste, mixed, loose	1 cubic yard	Tellus	1,443
Manure			
Manure	1 cubic foot	FEECO	25
Manure, cattle	1 cubic yard	Tellus	1,628
Manure, dried poultry	1 cubic foot	FEECO	41.2
Manure, dried sheep & cattle	1 cubic foot	FEECO	24.3
Manure, horse	1 cubic yard	Tellus	1,252

Wood			
Cork, dry	1 cubic foot	FEECO	15
Pallet, wood or plastic	average 48" x 48"	U.S. EPA	40

Material/Item	Size/Amount	Study	LB
Particle board, loose	1 cubic yard	Tellus	425.14
Plywood, sheet 2' x 4'	1 cubic yard	Tellus	776.3
Roofing/shake shingle, bundle	1 cubic yard	Tellus	435.3
Sawdust, loose	1 cubic yard	Tellus	375
Shavings, loose	1 cubic yard	Tellus	440
Wood chips, shredded	1 cubic yard	U.S. EPA	500
Wood scrap, loose	1 cubic yard	Tellus	329.5
Wood, bark, refuse	1 cubic foot	FEECO	30
Wood, pulp, moist	1 cubic foot	FEECO	45–65
Wood, shavings	1 cubic foot	FEECO	15
Miscellaneous			
Toner cartridge	.	U.S. EPA	2.5
Rubber			
Tire, bus	.	U.S. EPA	75
Tire, car	.	U.S. EPA	20
Tire, truck	.	U.S. EPA	60–100
Rubber, car bumper	.	U.S. EPA	15
Rubber, manufactured	1 cubic foot	FEECO	95
Rubber, pelletized	1 cubic foot	FEECO	50–55
Textiles			
Clothing, used, mixed	cubic yard	Tellus	225
Fabric, canvas	square yard	U.S. EPA	1
Leather, dry	1 cubic foot	FEECO	54
Leather, scrap, semi-compacted	1 cubic yard	Tellus	303
Rope	1 cubic foot	FEECO	42
String	yard	U.S. EPA	1 gram
Used clothing, mixed, loose	1 cubic yard	Tellus	225
Used clothing, compacted	1 cubic yard	Tellus	540
Wool	1 cubic foot	FEECO	15–30
Carpet & padding, loose	1 cubic yard	Tellus	84.4
Metals			
Please refer to Appendix I “What Counts Toward Diversion” to determine if these items qualify.			
Aluminum			
Aluminum foil, loose	1 cubic yard	Tellus	48.1
Aluminum scrap, cubed	1 cubic yard	Tellus	424
Aluminum scrap, whole	1 cubic yard	Tellus	175
Aluminum cans, uncrushed	1 case = 24 cans	U.S. EPA	0.89

Material/Item	Size/Amount	Study	LB
Aluminum cans, crushed	13 gallons	U.S. EPA corr.	7.02
Aluminum cans, crushed	33 gallons	U.S. EPA	17.82
Aluminum cans, crushed	39 gallons	U.S. EPA	31.06
Aluminum cans, crushed & uncrushed mix	1 cubic yard	Tellus	91.4
Aluminum cans, uncrushed	1 full grocery bag	U.S. EPA	1.5
Aluminum cans, uncrushed	13 gallons	U.S. EPA	2.21
Aluminum cans, uncrushed	33 gallons	U.S. EPA	5.61
Aluminum cans, uncrushed	39 gallons	U.S. EPA	6.63
Aluminum cans (whole)	1 cubic yard	U.S. EPA	65
Aluminum, chips	1 cubic foot	FEECO	7–15
Aluminum/tin Cans commingled—uncrushed	33 gallon	USEPA	11.55
Metals Ferrous			
Metal scrap	55 gallon	U.S. EPA	226.5
Metal scrap	cubic yard	U.S. EPA	906
Metal, car bumper	each	U.S. EPA	40
Paint can	5 gallon	U.S. EPA	2.21
Radiator, ferrous	each	U.S. EPA	20
Hanger (adult)	each	CIWMB	0.14
Hanger (child)	each	CIWMB	0.09
Tin can, ferrous	#2.5	U.S. EPA	0.13
Tin can, ferrous	#5	U.S. EPA	0.28
Tin can, ferrous	#10	U.S. EPA	0.77
Tin coated steel cans	1 cubic yard	U.S. EPA	850
Tin coated steel cans	1 case (6 #10 cans)	U.S. EPA	22
Tin, tuna can (3/4 of #10), ferrous	each	U.S. EPA	0.58
Tin, cat food can, ferrous	8 oz.	U.S. EPA	0.14
Tin, dog food can, large, ferrous	22 oz.	U.S. EPA	0.22
Tin, dog food can, ferrous	15.5 oz.	U.S. EPA	0.11
Tin, cast	1 cubic foot	FEECO	455
Cast iron chips or borings	1 cubic foot	FEECO	130–200
Iron cast ductile	1 cubic foot	FEECO	444
Iron, ore	1 cubic foot	FEECO	100–200
Iron, wrought	1 cubic foot	FEECO	480
Steel, shavings	1 cubic foot	FEECO	58–65
Steel, solid	1 cubic foot	FEECO	487
Steel, trimmings	1 cubic foot	FEECO	75–50
Brass, cast	1 cubic foot	FEECO	519

Material/Item	Size/Amount	Study	LB
Brass, scrap	1 cubic yard	Tellus	906.43
Bronze,	1 cubic foot	FEECO	552
Copper fittings, loose	1 cubic yard	Tellus	1,047.62
Copper pipe, whole	1 cubic yard	Tellus	210.94
Copper, cast	1 cubic foot	FEECO	542
Copper, ore	1 cubic foot	FEECO	120–150
Copper, scrap	1 cubic yard	Tellus	1,093.52
Copper, wire, whole	1 cubic yard	Tellus	337.5
Chrome ore (chromite)	1 cubic foot	FEECO	125–140
Lead, commercial	1 cubic foot	FEECO	710
Lead, ores	1 cubic foot	FEECO	200–270
Lead, scrap	1 cubic yard	Tellus	1,603.84
Nickel, ore	1 cubic foot	FEECO	150
Nickel, rolled	1 cubic foot	FEECO	541

Item	Type	Material	Size	LB
Furniture This data is from the U.S. EPA Business Users Guide Study.				
Desk	Executive, double pedestal	Wood		345
Desk	Double pedestal	Laminate	72" x 36"	299.5
Desk	Double pedestal	Laminate	60" x 30"	231
Desk	Single pedestal	Laminate	72" x 36"	250
Desk	Single pedestal	Laminate	42" x 24"	146
Desk	Double pedestal	Metal	72" x 36"	224.67
Desk	Double pedestal	Metal	60" x 30"	184.75
Desk	Double pedestal	Metal	54" x 24"	124
Desk	Single pedestal	Metal	72" x 36"	189
Desk	Single pedestal	Metal	48" x 30"	133.67
Desk	Single pedestal	Metal	42" x 24"	146
Desk	Single pedestal	Metal	40" x 20"	82
Desk	Small modular panel system			422
Desk	Large modular panel system			650
Work station	With return	Laminate	60" x 30"	329.33
Work station	With return	Metal	60" x 30"	230.67
Bridge	Executive	Wood		76.67
Bridge		Laminate		140
Credenza		Wood		250.78
Credenza		Laminate		230.14
Credenza	With knee space	Metal	60" x 24"	156.67
Round conference table	.	Wood	42" diameter	91.5
Bookcase	3 shelves	Wood	36" wide	90
Bookcase	4 shelves	Wood	36" wide	110.9
Bookcase	5 shelves	Wood	36" wide	138.8
Bookcase	6 shelves	Wood	36" wide	134.6
Bookcase	7 shelves	Wood	34" wide	138.5
Bookcase	4 shelves	Laminate		85
Bookcase	5 shelves	Laminate		110
Bookcase	2 shelves	Metal	34"-36"	44.5
Bookcase	3 shelves	Metal	34"-36"	57.5
Bookcase	4 shelves	Metal	34"-36"	70.5
Bookcase	5 shelves	Metal	34"-36"	89
Bookcase	6 shelves	Metal	34"-36"	101
File Cabinet	2 drawer, lateral	Wood		155.14

Item	Type	Material	Size	LB
File cabinet	2-drawer, lateral	Laminate		171.5
File cabinet	2-drawer, lateral	Metal	30"-42"	230.67
File cabinet	4-drawer, lateral	Metal	36"	207.33
File cabinet	2-drawer, vertical	Metal	Letter size	60.6
File cabinet	4-drawer, vertical	Metal	Letter size	107.6
File cabinet	2-drawer, vertical	Metal	Legal size	71.5
File cabinet	4-drawer, vertical	Metal	Legal size	123.5
Chair	Executive desk			51.167
Chair	Guest arm			38.2
Chair	Swivel arm			45.25
Chair	Secretary with no arms			31.76
Chair	Stacking			15.83
Personal computer	CPU (central processing unit)			26
Computer monitor				30
Computer printer				25.33

Source Acronyms Used:

CIWMB: California Integrated Waste Management Board

FEECO: FEECO Incorporated

Tellus: Tellus Institute, Boston Massachusetts

U.S. EPA: United States Environmental Protection Agency (Business Users Guide)

Appendix J

Determining Number of Samples

Determining the Number of Samples to Take or Surveys to Conduct

A universally accepted or legally mandated statistical formula to determine the number of solid waste diversion audits or surveys needed for a statistically representative study does not exist. The following standard formulas (designed for determining sample sizes for proportions) have been used to fill that void. A very large jurisdiction such as Los Angeles could take more samples and set up stratified sampling within business groups.

While other methods may exist or may be developed later, this method should provide a base (minimum number of samples needed) to which additional samples may be added as the specific conditions in a jurisdiction dictate. If you are only interested in diversion in a single business group, it is suggested that the jurisdiction take a minimum of 40 samples within that single business group to get reliable, useful results. Note: When using cluster and stratified sampling in medium or large jurisdictions, groupings should be made using either the four- or six-digit SIC code. This level may not be useful in smaller communities. Jurisdictions should work with a statistician to determine groupings.

If you are only interested in diversion in the overall business sector, then you need to determine the number of random samples needed for a 90 percent confidence interval, with a plus or minus 5 percent precision level. Because the participation level for any given diversion program or activity is unknown prior to sampling, the initial estimated participation level is assumed to be 50 percent (thus maximizing the number of samples required). *In the table, if the number of entities in a jurisdiction fall between the values given, use the value that results in the smaller number of samples needed (the entity number represents the bottom of the range of values).

Number of Samples based on Number of Entities in Population

Number of Entities (Businesses, Households, etc.)*	Number of Samples Needed	Number of Entities (Businesses, Households, etc.)*	Number of Samples Needed	Number of Entities (Businesses, Households, etc.)*	Number of Samples Needed
N	n	N	n	N	n
1	1	78	61	218	121
2	2	80	62	221	122
3	3	82	63	224	123
4	4	83	64	228	124
5	5	85	65	231	125
6	6	87	66	235	126
7	7	89	67	238	127
8	8	90	68	242	128
9	9	92	69	245	129
10	10	94	70	249	130
11	11	96	71	253	131
13	12	98	72	256	132
14	13	100	73	260	133
15	14	101	74	264	134
16	15	103	75	268	135
17	16	105	76	272	136
18	17	107	77	276	137
19	18	109	78	280	138
20	19	111	79	284	139
22	20	113	80	288	140
23	21	115	81	293	141
24	22	117	82	297	142
25	23	119	83	302	143
26	24	121	84	306	144
27	25	123	85	311	145
29	26	125	86	315	146
30	27	128	87	320	147
31	28	130	88	325	148
32	29	132	89	330	149
34	30	134	90	335	150
35	31	136	91	340	151
36	32	139	92	345	152
37	33	141	93	350	153
39	34	143	94	355	154
40	35	146	95	361	155
41	36	148	96	366	156
43	37	150	97	372	157
44	38	153	98	377	158
45	39	155	99	383	159
47	40	158	100	389	160
48	41	160	101	395	161
50	42	163	102	401	162
51	43	165	103	407	163
52	44	168	104	414	164
54	45	171	105	420	165
55	46	173	106	427	166
57	47	176	107	433	167
58	48	179	108	440	168
60	49	182	109	447	169
61	50	184	110	454	170
63	51	187	111	461	171
64	52	190	112	469	172
66	53	193	113	476	173
67	54	196	114	484	174
69	55	199	115	492	175
70	56	202	116	500	176
72	57	205	117	508	177

(Given: 90 Percent confidence interval, 5 percent precision, 50 percent participation level)

* If your N is between values given, use the smaller number of samples

74	58	208	118	516	178
75	59	211	119	525	179
77	60	215	120	534	180

Number of Entities (Businesses, Households, etc.)*	Number of Samples Needed	Number of Entities (Businesses, Households, etc.)*	
		N	n
543	181	2162	241
552	182	2246	242
561	183	2336	243
571	184	2432	244
580	185	2535	245
590	186	2647	246
601	187	2768	247
611	188	2899	248
622	189	3043	249
633	190	3200	250
644	191	3373	251
656	192	3563	252
667	193	3775	253
680	194	4011	254
692	195	4277	255
705	196	4578	256
718	197	4922	257
732	198	5319	258
745	199	5780	259
760	200	6325	260
774	201	6978	261
790	202	7774	262
805	203	8767	263
821	204	10040	264
838	205	11729	265
855	206	14081	266
872	207	17579	267
890	208		
909	209		
928	210		
948	211		
969	212		
990	213		
1012	214		
1035	215		
1059	216		
1083	217		
1109	218		
1135	219		
1163	220		
1191	221		
1221	222		
1252	223		
1285	224		
1318	225		
1353	226		
1390	227		
1429	228		
1469	229		
1511	230		
1556	231		
1603	232		
1652	233		
1704	234		

(Given: 90 Percent confidence interval, 5 percent precision, 50 percent participation level estimate)

*** If your N is between values given, use the smaller number of samples**

1758	235		
1816	236		
1877	237		
1942	238		
2011	239		
2084	240		

The two formulas below were used to develop the following table on numbers of entities (businesses, households, etc.) within a jurisdiction and the corresponding number of samples required.

STEP 1: Number of Samples for an Infinitely Large Population

$$n_o = \frac{z^2 p(1-p)}{\Delta^2} \qquad n_o = \frac{1.645^2 0.5(1-0.5)}{0.05^2} = 270.6025$$

Where:

z = 1.645 (value for 90 percent confidence interval)

p = 0.5 (estimate for unknown participation level of 50 percent)

Δ = 0.05 (5 percent precision level)

STEP 2: Corrected Number of Samples for a Finite Population

$$n = \frac{n_o}{1 + \frac{n_o}{N}} \qquad n = \frac{270.6025}{1 + \frac{270.6025}{N}} = \text{Number of Samples Needed}$$

Where:

N = Number of Entities (businesses or households) in population to be sampled

n_o = 270.6025

n = Number of Samples Needed

Appendix K

Jurisdiction Checklist for Base Year Proposals

Jurisdiction Checklist for Base Year Proposals

The Board has continually affirmed that compliance with AB 939 involves both achievement of the diversion mandates and implementation of diversion programs. The Board is committed to ensuring that local governments are implementing the programs described in their Source Reduction and Recycling Elements and their Household Hazardous Waste Elements. In upholding the intent of AB 939, the Board also is expecting jurisdictions to demonstrate real disposal reduction and not to simply quantify preexisting diversion activities to reach the 50 percent diversion mandate.

The checklist is a guidance tool for jurisdictions submitting a base-year study to the Board. The base-year proposal should contain good documentation, solid calculations, strong methodology, and clear summaries.

Prior to submitting a final proposal to the Board, submit a draft to your Office of Local Assistance staff contact, so they can review the proposal and provide feedback.

Methodology

- ❑ If extrapolation was used, check to make sure that the methodology is clearly documented and that all of the necessary information has been provided to clearly document how the method was performed, including: type of sampling method; source for identifying population; total population and sample size; survey data collection tool(s) and approach; confidence level and margin of error; explanation of outliers. Note: diversion tonnages from extremely large businesses, or those with atypical diversion practices, should not be extrapolated to the entire population.
- ❑ If jurisdictions are doing a study jointly; e.g., a county and associated cities, then they should use population for residential programs and taxable sales combined with employment for commercial programs when allocating diversion from regional facilities. For example, the jurisdictions would use taxable sales and employment for allocating landfill salvage tonnage from a regional facility to the various jurisdictions.
- ❑ All conversion factors that are used should be referenced in the proposal. Check the factors to make sure they are consistent with the Diversion Study Guide. If they are different, explain why they are different in the proposal and provide sources. The conversion factors provided may not be representative of every jurisdiction within the state and should be used only if they accurately reflect the weight of items and materials submitted in the jurisdiction's diversion study.
- ❑ Make sure that there is no double-counting of diversion data. For example, check that the non-residential sector data is not also captured in the reports from the haulers, MRF operators, and/or composters.

Diversion

- ❑ The diversion should be well documented. Documentation provided should demonstrate that the jurisdiction is actually sending materials to a diversion facility. Note: If a jurisdiction claims diversion, for example, and yet there is no information from the business stating that the jurisdiction's residents send materials to their facility, then the diversion shouldn't be counted.
- ❑ Make sure the types of diversion activities are described. The new base-year request should contain a good explanation of what type of program generated the diversion (material types and diversion tons should correspond).

- ❑ Compare waste prevention, recycling, and composting categories to see if one seems abnormally high. This is an indicator. If one is extremely high, then an explanation should be provided in the proposal.
- ❑ If any particular diversion activity is extraordinarily high when compared to the other diversion activities, provide an explanation. For example, if landfill salvage is high compared to the other recycling tonnage, provide an explanation that justifies the diversion. Check curbside recycling tonnage against total residential diversion and see if it is high; e.g., 18 percent or higher. If it is high, explain why you are getting such a high diversion rate; e.g., the jurisdiction has a high participation rate, automated program, 96-gallon recycling containers, includes greenwaste, etc.
- ❑ For quantifying source reduction, a disposal-based quantification method should be used. The tonnage for source reduction should be counted as the incremental difference of a material being diverted versus looking at it in perpetuity. For example, when quantifying the reuse of wood pallets you should determine the normal life expectancy of the pallet; e.g., wood pallets are not typically bought and disposed of after one use. Thus, if a business uses 1,000 pallets and the life expectancy is 25 uses per pallet, diversion would be quantified as 1,000 pallets being diverted, not 25,000 pallets diverted.
- ❑ If sludge is being counted, be sure to refer to the “What Counts” section in the Diversion Study Guide (DSG) and also PRC 41781.1 and 14 CCR section 18775.2. Sludge certification is required for the material to be counted as diversion.
- ❑ If using an inerts landfill (Nuway, Peck Rd), confirm that the material being claimed for diversion was actually beneficial use and not “filling the hole.” An explanation should be included for the diversion from an inerts landfill.
- ❑ If inerts, scrap metal, white goods, or agricultural waste is being counted, check to see if the restricted waste criteria apply. The proposal should specifically address restricted waste (see Appendix I, “What Counts,” for additional information).
- ❑ If businesses were surveyed for the purposes of extrapolation, make sure a large enough sample was obtained. Provide the sampling methodology in the base-year request certification sheet that is submitted to the Board. (See Appendix J for recommended sample sizes.) Note: Do not extrapolate diversion tonnages from extremely large businesses, or those with atypical diversion practices. Add the actual diversion tonnages from all very large businesses to the diversion tonnage extrapolated from the randomly selected businesses.
- ❑ The diversion data should be for the same year. If multiple years are used, there should be a strong explanation that is logical.
- ❑ If biomass or transformation is listed as a diversion activity in the base-year proposal, it can only be counted as diversion in the year 2000. If the proposed base year is prior to the year 2000, the jurisdiction cannot count that diversion.
- ❑ If tires are being counted as diversion, the jurisdiction should explain how the tires are being diverted. For tire diversion to count, the jurisdiction should address that the tires were reused or recycled. In many tire-burning facilities, metals and other materials are separated from the tire before they are burned, and this material could also be counted as diversion. The jurisdiction which hosts the facility would receive diversion credit for any materials which are diverted after the tires have been burned such as metals or ash that is diverted. NOTE: Since transformation could not be counted until the reporting year 2000, tires that were burned cannot count prior to 2000.

- ❑ If the pounds/person/day (generation) is high, you will need to provide an explanation.

Disposal

- ❑ Double-check that the disposal data is accurate according to the Disposal Reporting System.
- ❑ If the disposal tonnage went up significantly from the previous year and yet the base year change is a high rate, you should provide an explanation.

