

APPENDIX N: MATERIALS FROM ROUND ONE BETA TESTING

Frequently Asked Questions

What are the benefits of using CIWMB's Commercial Diversion Calculator?

Any business that uses this calculator can:

- Gain a better understanding of your waste and its impacts - from cost to volume to environmental impact.
- Determine your potential for further reducing your impacts by reducing and recycling your waste.
- Share an easy-to-read report with customers or management that highlights successes and future opportunities to reduce your waste.
- Access dozens of free resources to get new programs started today!

I don't have a recycling program. Is this calculator for me?

Yes! This calculator is designed for all types of users, including those without recycling programs. All you need is a computer, access to Microsoft Excel, and basic information about your business such as the number of employees, county in which you are located, and your sector.

What if I don't have any information about my trash and recycling?

No problem! You will be directed to enter basic information about your business such as the number of employees, county in which you are located, and your sector. Waste and recycling information will automatically appear based on your business profile. You can then use this information to determine what future potential your business has for further reducing or recycling your waste.

I already have established methods for tracking or reporting my trash and recycling levels. Why would I use CIWMB's calculator?

The primary goal for businesses that use this calculator is to evaluate future potential, not current waste or recycling levels. More specifically, this calculator is designed to help the user examine the relative diversion, financial and climate impacts associated with different waste handling strategies.

How is CIWMB's calculator different than EPA's Waste Reduction Model (WARM)?

In addition to estimating the climate impacts associated with different waste handling strategies (WARM's focus), CIWMB's calculator also provides the user with current and future estimates of their waste and recycling volumes, costs and greenhouse gas emissions. In addition, the CIWMB calculator includes: 1) some California-specific waste, cost, and GHG emissions estimates, and 2) a user interface and results page intended for average businesses not solid waste planners (WARM's target audience).

CIWMB Commercial Diversion Calculator: Testing Guide

Interviewee name:

Name of business or organization:

Interviewer:

Date:

Start time:

End time:

Overview of Today's Test Session

First, thank you for taking the time to meet with me today! We have about an hour for this testing session. I'd like to start by providing you with some background information on our project, and then we'll load our Excel-based calculator onto your computer for testing.

Background

The calculator you'll be testing today is intended for virtually any California business to use. In short, it helps businesses evaluate the financial, climate, and diversion benefits of implementing waste reduction and recycling strategies.

This calculator is being developed with funding from the California Integrated Waste Management Board (CIWMB) to help businesses respond to the mandatory commercial recycling program included in the AB32 climate change bill.

To ensure the calculator is ready to be released next spring, our team is conducting two rounds of testing with up to 20 users in total. You were selected as one of the testers.

Our purpose today is for you to use our calculator and provide candid feedback about your experience. I will be taking notes along the way, and would encourage you to talk out loud. I'll note areas of confusion or concern. Also, I'm happy to respond to any questions you have during our session.

Lastly, we need to save the version of the calculator you use today for our developers to examine after our test session. This helps further inform the development process.

Do you have any questions at this point? *(Refer to FAQ sheet for common questions and answers.)*

Business Background

On a scale of 1 to 5, with 1 being very basic and 5 being very advanced, how would you describe your skill level in using Microsoft Excel?

Similarly on a scale of 1 to 5, how would you rate your business' waste reduction and recycling efforts if 1 means very basic and 5 means very advanced? *Allow time for them to elaborate for a few minutes.*

Are you planning to use real data about your trash and recycling today?

Thanks for your responses. Let's go ahead and load the calculator on your computer so we can get started with the testing session.

Introduction

Are the instructions and introduction sufficient?

Does the user easily move to the next appropriate sheet?

Describe any questions, concerns, or points of confusion here:

Glossary

Do the terms make sense? Are any additional ones needed?

Does the user easily move to the next appropriate sheet?

Describe any questions, concerns, or points of confusion here:

General Info

Are instructions sufficient?

Do the checkboxes work?

Describe any questions, concerns, or points of confusion here:

Does the user easily move to the next appropriate sheet?

Current Trash

Are instructions sufficient?

Describe any questions, concerns, or points of confusion here:

Trash Amount

Cost

Makeup

Multiple bins

Does the user easily move to the next appropriate sheet?

Current Recycling

Are instructions sufficient?

Describe any questions, concerns, or points of confusion here:

Trash Amount

Cost

Makeup

Multiple bins

Does the user easily move to the next appropriate sheet?

Future Benefits

Are the instructions sufficient?

Describe any questions, concerns, or points of confusion here:

Data Table

Graphs

GHG equivalents

Does the user easily move to the next appropriate sheet?

Print Report

Is this a helpful summary report for the user?

Would the user add or take out any of the information on this page?

Would the user print this report and share it? If so, with who?

Describe any questions, concerns, or points of confusion here:

Does the user easily move to the next appropriate sheet?

Resources

What, if any resources are missing?

Describe any questions, concerns, or points of confusion here:

Other Sheets (Background Data, Waste Data, Calculations)

Does the user go to these sheets?

Does the information make sense to them?

Describe any questions, concerns, or points of confusion here:

Closing

Again, thank you for taking the time with me today and share your feedback about this calculator. This information will be shared with our developers and used to inform changes between now and the next testing session or the final public release next spring. Also, we may follow up with you by phone with clarifying questions in the next month or two.

Do you have any additional feedback you'd like to share with our developers?

Would you be interested in participating in the second round of testing in February?

To: Janelle Auyeung, Project Manager, CalRecycle
From: Amity Lumper & Shannon Donegan, Subconsultants, Cascadia Consulting Group, Inc.
Cc: Rob Hilton, Prime Consultant Project Manager, HF&H
Charlie Scott, Cascadia Consulting Group, Inc.
Date: January 28, 2009
Re: Commercial Diversion Calculator:
Round 1 Testing Summary & Recommended Revisions

This memo provides a summary of the results of the first of two rounds of stakeholder testing that will assist Cascadia Consulting Group, Inc. (Cascadia) in our development of CalRecycle's commercial diversion calculator ("calculator").

Primary Objectives

Testing sessions with key stakeholders were necessary to:

- Maximize the usefulness and relevance of the calculator;
- Identify areas of confusion;
- Test the accuracy of the calculator's estimated results; and,
- Understand potential challenges users may face while using the calculator.

Testers

Cascadia worked with Stanfield Systems and HF&H to test the draft calculator with 11 stakeholders representing a variety of geographic areas and sectors. Cascadia also conducted a testing session with several members of CalRecycle staff. The following people tested the calculator and provided feedback:

CalRecycle staff

Barry Leonard, Barry Leonard & Associates, Healthcare

Cheri Chastain, Sierra Nevada Brewing Company, Manufacturing

David Baker, Green Restaurants Alliance Sacramento, Restaurant

Debra Kaufman, Alameda County WMA, Local Government

Evan Edgar, California Refuse Removal Council, Consultant/Trade Group

Julie Muir, Stanford University, Education

Krisanne Hanson, Stanford Hospital, Healthcare

Kosuke Numata, Calbee America Inc., Manufacturing

Nick Lapis, Californians Against Waste, Non-profit

Melissa Meyers, WestPro Realty, Multifamily

Sue Gordon, Rainbow Disposal, Recycler

The following people were contacted and were either uninterested or unavailable to participate in the first round testing:

Andy Keller, President, Chico Bag, Manufacturing
Hipolitto Sanchez, Hitachi, Technology Services
Pam Flank, Hotel Carlton, Hospitality
Steve deCastillo, Ebay, Technology Services

Feedback

A summary of tester recommendations is included below. The feedback is grouped into three primary categories: “Feedback to Implement,” “Good Ideas that Can’t be Implemented Due to Lack of Data,” and “Feedback Not to Implement.” Each recommendation includes a label with the spreadsheet in the calculator that the recommendation corresponds to ([GI] for General Information, [CR] for Current Recycling, etc.).

Feedback to Implement

This feedback falls into four categories: “Language & Instructions,” “Data & Calculations,” “Future Benefits,” and “Next Steps.” These suggestions will be relatively straightforward to implement and will enhance the usability and accuracy of the calculator.

Language & Instructions

- Modify “select all that apply” instruction to accommodate the mutually exclusive checkboxes in this section (two separate columns—have program(s) or do not) [GI]
- Change “Cans/Bottles” to “Bottles and cans” to maintain with Industry standard jargon [GI, CR]
- Change “Click here to revise” to “click here to enter your current trash information,” “Click here to enter current trash information that is different than the defaults,” etc. [GI]
- Add Butte county to county list [GI]
- Add “Full Time Employee *equivalents*” [GI]
- Add a tip for the users with several buildings in their business “If several building in business recommend using a separate spreadsheet for each” [Int]
- Only require user to enter percent of shared waste if the dumpster is shared [CT, CR]
- On a small screen, it was not immediately clear that there was more information below; add instructions to scroll down [CR, CT]
- Clarify that “makeup” is in terms of percentage by weight [CR, CT]
- Specify that these are multiple bins of just trash [CT]
- Clarify how to use the multiple bins section. Having the user select “Have information on number of containers and pickups” but not enter any required fields directly under this option but making the user navigate all the way to Multiple bins section is confusing [CR, CT]
- Make navigation instructions clear throughout [All]
- Says “share of cost,” should be “share of recycling” [CR]
- Sheet doesn’t fit on one page [CR]

- Describe data limitations of the calculator (see some limitations listed below in *good ideas* section) [CR, CT, FB]
- Clarify how data that has been entered contributes to results [FB]
- Clarify language “reducing” [FB]
- Highlight that these are results for MY business [FB, PR]
- Clarify difference between future actions and baseline [FB]
- Clarify pie chart wording on print report [PR]
- Add link to clarify definitions of source reduce vs. eliminate [FB]
- Add link in glossary to navigate back to previous tabs [Glo]
- Add in “cost per ton” in cost background data section [BD]
- Highlight area where you are missing information—don’t just leave users hanging when results are blank because of an error [All]
- Add heading “units” above areas where you need to select units [CR, CT]
- Review dropdown menus and materials list so that order makes sense (alphabetical, etc.) [All]
- Add in header for each page and each section that tells user where he is in the process (e.g. step x of 5, optional) [All]
- Remove option to enter inputs that don’t apply to user (e.g. grey out data entered into different cells or white out the data entry to begin with) [All]
- Remove construction debris from material list because businesses don’t have concrete or asphalt paving and this tool isn’t intended for C&D users [All]
- Include the word “landfilled” along with Current trash [CT]
- Communicate results of first round of testing with first round testers

Data & Calculations

- Check calculations for revising makeup—add to 100% [CR, CT]
- Show footprint reductions as negative (below x-axis, so all the graphs move in the same direction between before and after) [FB, PI]
- Check data entry in action table: 25% not 2005% [FB]
- The amount displayed is larger than the field so its shows ##### [CR]
- When the user enters 0 into the cost, the digit is not displayed in the field making the user think that 0 is not a valid number to enter [CR]
- Include source reduction cost savings of not paying for materials in the first place [FB]
- Check calculations regarding source reducing recycled material [FB]
- Revise MSW and mixed recycling density calculations to allow for different densities for each sector, based on average composition [Calc]
- Check default trash costs for multifamily customers with cart-based service [BD]
- Check cost of recycling vs. disposing lumber and cost of yard waste [BD]
- Allow user to calculate the amount of trash by just entering the price that they pay (add note to caveat the uncertainty associated with this method) [CT, CR]

- Include detailed cost breakdown in background data section[BD]
- Increase number of fields for the single recycling program to a minimum of 4; more if possible [GI]
- Determine whether it is possible to easily add “Bottles and Cans” or “Bottles and Cans with deposit” to the material list for the makeup [All]

Future Benefits

- Determine possibility of allowing number of decimal places to vary so that results register even if numbers are very small [FB]
- Make the results table more clear; it currently describes both the status quo and the change, which is confusing [FB]
- Provide some reference, examples, or guidance for what can be source reduced or recycled; help businesses understand what is possible or likely; action oriented; allow users to compare themselves to average business [FB]
- Highlight total amount of \$ saved [FB, PR]
- Explore feasibility of having graphs with a different color for each material to see how much it is contributing to overall benefits [FB]

Next Steps

- Add “Next Steps” instructions, with instructions on what the business should do next and how to do it (e.g. look at garbage bill, talk to hauler, call local solid waste municipality or county) [PR]
- Add some feature for businesses who want to know about complying with AB32; ex. “reduce 50% of my trash” or some other default for compliance with assistance from CalRecycle [PR]
- Refine Resources section with assistance from CalRecycle [Res]
 - Have at least one resource per county
 - Streamline page so it’s not too much information that isn’t specific to the business
 - Populate local resources based on county (at least for next steps)

Good Ideas that Can’t be Implemented Due to Lack of Data

We are unable to resolve the following recommendations due to data limitations. We have documented these suggestions so that CalRecycle is aware of the data gaps and able to update the calculator when and if better data become available.

- The data for the education sector do not differentiate between private schools, public schools, and universities, nor are they based on student population [BD]
(The disposal and recycling data available for this sector are based on FTEs, not on type of institution or student population. Including these two variables would increase the accuracy of the calculations, but there is no data currently available for these individual education types.)
- No data are available for malls, aerospace industry, and manufacturing. Average recycling data are not available for multifamily. [BD]

(The calculator is limited by the availability of robust disposal and recycling generation profiles. Cascadia will explore the possibility of including some manufacturing estimates in the final calculator.)

- Recycling amount data seems too low for office-based businesses [BD]
(Similar to the comment above, the calculator is limited by the data currently available.)
- Calculator does not account for resource recovery at MRFs [BD]
(Adjusting for resource recovery at MRFs would require detailed regional data about MRF recovery rates, which is not publicly available at this time.)
- Use better greenhouse gas emission factors for paper, food scraps, yard waste, and lumber [BD]
 - Paper (carbon storage)
 - Lumber (emission factors for recycling reflects reuse, not combustion)
 - Food scraps and yard waste (benefits of composting)

(The calculator uses the most accurate greenhouse gas emission factors that are available at this time. As better emission factors become available, they can be updated in the calculator to increase the accuracy of the GHG calculations and results.)

Feedback Not to Implement

The following section documents the feedback received that, with CalRecycle’s approval, will not be implemented. Cascadia and HF&H have weighed the trade-offs of each recommendation and ultimately decided that these are not possible or desirable to incorporate given the scope and intent of this project. A brief explanation of our rationale is included in parentheses beneath each.

- Provide a list of materials that are important for user to track [All]
(The materials in the calculator are the common materials that nearly all businesses should track. Customizing this list for each business would involve complex programming.)
- Add polystyrene to material types [All]
(Although polystyrene does have important environmental impacts, this calculator is focused on greenhouse gas emissions, which are less relevant to polystyrene than those materials currently included and are called out in the AB32 scoping plan. Additionally, polystyrene does not contribute to measurable diversion by weight or cost savings for businesses due to its voluminous nature.)
- Make it easier to change makeup—e.g. user sees one material that they know is wrong, changes it, calculator automatically generates other composition [CT, CR]
(Although this would be a good feature, it would be difficult to implement this suggestion and maintain the current clarity of the makeup sections. Furthermore, if the user changes a material and the calculator automatically scales the makeup of the other materials, there is no guarantee that data would be more accurate than the user’s actual data.)
- Allow user to easily change makeup using tons or percentages [CT, CR]
(Similar to the comment above, this is a good idea but would make the entry section more complicated. The user could conduct a quick calculation to convert the percentages to corresponding tons.)
- Provide a conversion table for widely-used units and guidance for those used in Current Trash tab [CT]
(The user has the opportunity to select from a few different types of units, which the calculator will automatically convert. The detailed conversion table is available for review on the Background Data tab.)
- Add ROI calculations [FB]

(Adding these calculations would require us to ask the business for several assumptions. For most businesses, there will be little if any upfront investment required to increase recycling or further reduce their waste. Larger businesses more likely to make capital investments in equipment likely already use existing formulas to calculate ROI or other financial metrics to justify those purchases.)

Next Steps

Following CalRecycle's approval, Cascadia will finalize the proposed revisions to the calculator. The second round of stakeholder testing will commence after revisions are incorporated and quality checks are completed for the new calculator. Additional revisions will be made after this second round of testing, with the final calculator scheduled for release in April 2010. A revised timeline for the completion of the calculator is shown in the table below.

Activity	Timeline
Receive CalRecycle feedback on proposed revisions	Jan 29, 2010
Finalize proposed revisions to calculator	Feb 19, 2010
Conduct 2 nd round of testing	Feb 22 – Mar 12, 2010
Compile feedback and agree on final revisions	Mar 19, 2010
Finalize calculator	Apr 16, 2010