User's Manual:

CURBSIDE COLLECTION COST MODEL

Version 2
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PREFACE

CIWMB staff consulted with both local government officials and private sector service providers in the Curbside Collection Cost Model's development. Their input proved instrumental in ensuring that the work product was both functional and useful. This should not be viewed as the end of the process, however. This User's Manual and the CCCM are dynamic tools that will evolve based on user comments. Submit your comments to the following address: California Integrated Waste Management Board, Policy and Analysis Office, 8800 Cal Center Drive, Sacramento, California, 95826.

TABLE OF CONTENTS

INTRODUCTION AND MODEL DESCRIPTION

OVERVIEW

The concept for a curbside collection cost model came from local governments. In the fall of 1994 the California Integrated Waste Management Board (CIWMB) conducted a series of technical assistance workshops throughout the state. At these workshops, local government officials voiced a unanimous desire that the CIWMB develop a generic framework that they could use to estimate collection costs for planning purposes. CIWMB staff viewed this as a logical extension of the Facility Cost Model (FCM) which it had recently completed. Thus, after receiving Board approval in December 1994 to initiate the undertaking, the effort began to develop a tool that local governments could use for modeling the costs of various curbside collection systems.

The intent of this model, the Curbside Collection Cost Model (CCCM) is to provide local governments with a mechanism to model and compare the costs associated with collecting recyclables, not mixed solid waste. While staff realize that programs collecting recyclables are different from programs collecting waste, creative users can modify the existing model structure to reflect mixed solid waste collection costs.

The CCCM and this accompanying User's Guide are evolving documents. They will be updated periodically based on comments from users. This version, Version 2, has been revised based on a series of workshops attended by local government officials and others. At these workshops, we received many excellent recommendations on how to improve the CCCM. And though we considered all suggestions, we were only able to incorporate some. Those suggestions not integrated into the CCCM were omitted for technical reasons primarily associated with maintaining the balance between flexibility and ease of use. This version differs from the previous in the following ways:

A) It provides an additional Summary Table (Table 20) with automatic calculations for the total annual cost per household, total annual cost per person, truck fleet cost per hour, labor cost per hour, truck fleet cost per ton diverted, labor cost per ton diverted, and total cost per ton diverted.

B) It includes a list of user inputs at the beginning of Chapter 2 to facilitate up-front research and data entry.

C) Table 5, Jurisdiction Attributes, now references non-industrial waste generated in the state that is attributed to the residential sector annually, not all waste.

D) Automatic cell fill-in for participation rates and the number of set-outs per month is included in Tables 6 and 7 for those who wish to use it. The cells with the auto fill-in are a yellowish-brown to indicate that user input is optional.

E) Participation rate is incorporated into Tables 10 and 13. This results in a more accurate estimate of the number of trucks needed because the calculation is based on the number of stops the truck actually makes in servicing the route, not the total numbers of households on a route.

F) Tables 6A and 7A, summary look-up tables that required no user inputs, are eliminated.

G) Questions regarding non-CRV glass (formerly of Tables 8 and 11) are moved into the Material Quantities Worksheet (Tables 6 and 7) with other waste generation percentages.

H) Charts and tables that visually depict costs to facilitate comparison of baseline and model scenarios are included. Macro buttons are incorporated into the Summary Worksheet to facilitate access. The buttons need only be clicked on to execute the macro.

I) Added to the bottom of each worksheet are two macro buttons that can be used to save the workbook. The first button returns the cursor to the first worksheet, which is the Dispatch Yard Worksheet, and the second button returns the cursor to the Summary Worksheet.

J) Miscellaneous errors in cell reference formulae were corrected.

CONTENTS

This User's Manual provides step-by-step instructions regarding use of the accompanying diskette that contains the electronic workbooks and worksheets. This computer-based model, in Excel 5.0, is intended to serve as a high-level planning tool, so its primary strength lies in its ability to facilitate a comparison of various curbside collection alternatives for recyclables. Simply because the CCCM is empirical, does not mean that it should be construed as a precise accounting tool that can be used to establish service fees. As with any model, the outputs are only as good as the inputs, and the maxim "garbage in, garbage out" is always apropos. A thorough explanation of how to properly apply the CCCM is provided in Chapter One of this Manual.

Much concern revolves around the CCCM's proper application. Chapter One is intended to mitigate those concerns by clarifying the difference between proper and improper application of the model. Also discussed are both broad and specific technical issues relating to spreadsheet mechanics that users should keep in mind. This chapter includes an analysis of the model's strengths and weaknesses and should be reviewed prior to using the CCCM in an actual application.

Chapter Two guides the user through the CCCM which is comprised of two separate electronic workbooks, one for commingled collection and the other for source separated collection. Each workbook is a series of worksheets which contain tables, charts and graphs. Each of the six sections in Chapter Two explains the purpose of a different

worksheet and provides instructions for using the respective tables, charts, and graphs. Appendix A contains information about material densities that may be of benefit to the user in Tables 3 and 4. Copies of the worksheets and tables are in Appendix B and Appendix C, respectively.

CHAPTER ONE: ISSUES PERTAINING TO MODEL USE

TECHNICAL ISSUES

Separated v. Commingled Collection - Curbside collection programs can collect separated or commingled materials. Because of structural constraints encountered when developing the worksheets, CIWMB staff found it simplest to make two separate models, or "workbooks", one for separated collection (up to four compartments per truck each with four materials), and the other for commingled collection. Both workbooks are on the diskette that accompanies this User's Manual. The workbook for separated collection is titled "CCCMSEP2.XLS". The workbook for commingled collection is titled "CCCMCOM2.XLS". The outward structure of the workbooks are similar and all tables appear very much the same. It is the internal formulae that differ; thus, there is a need for both workbooks.

General Structure - Each workbook is structured to compare two scenarios, the baseline scenario and the model scenario. Thus the user will generally find that for each workbook there are two parallel sets of calculations taking place, one for the baseline and one for the model. These calculations take place in two basically identical sets of tables. This allows the user to make changes to the baseline inputs and easily view how the changes impact cost.

Changes in the Amount Generated and Wastestream Composition - Waste generation and the amount of material available for recycling will vary over time. The CIWMB incorporated into the model a means to determine future waste generation by taking into account economic and population factors.[1] These factors are applied to the default waste generation data provided in the CCCM.[2] Although it is improbable to believe that wastestream composition will remain the same over time, there is no alternative, consistent basis to determine how composition varies over time. Users with jurisdiction-specific baseline waste generation data may directly enter it into Table 6. Users that want to project different changes in generation for specific material types (e.g., project the percent of yardwaste to decrease due to grasscycling) may do so, but must enter the data directly into Table 7. It will be necessary to override the existing formulae.

Waste Prevention Impact on Generation - Communities that anticipate waste prevention will have a mitigating affect on the rate of increase in waste generation can take this factor into account when running the CCCM. In Table 5, the user determines the rate that waste generation is expected to decline due to waste prevention efforts. The difficulty of quantifying waste prevention contributed to the decision to calculate Integrated Waste Management Act compliance based on changes in waste disposal, not waste generation. While the inclusion of this factor into the model neither resolves the quantification issue, nor may it be used to adjust baseline data for official reporting

[1] For a complete review, see the "Base Year Adjustment Method", CIWMB, 1993.
[2] Default data is derived from statewide waste generation data as reported in Source Reduction and Recycling Elements.

to the CIWMB, it does provide localities flexibility in their planning process as it relates to using this model.

Seasonal Variation - Few materials are generated in a consistent amount throughout the year. For example, sales of beverages are higher in warmer months, so it is reasonable to expect more beverage containers to be collected for recycling during the summer. Likewise, generation of grass clippings will tend to be higher in spring and early summer, and while it will decline in the fall, this will be made up for by an increase in the generation of leaves. Although it is possible to identify the general direction of the trends for specific material types, it is difficult to incorporate the variation into a model structure. This challenge is compounded by the fact that each community will handle seasonal fluctuations differently. In one community it may be more efficient to run another collection shift, while in another community it may be preferable to add more trucks to a collection route. As a result, the model is structured based on the premise that generation remains uniform throughout the year. Users may alter the CCCM to account for seasonal variation, but this data must be input manually.

Material Specific Recycling Rates - The worksheets are structured so that capture rates and participation rates are material specific. Users who can quantify the impact of any influencing factors (e.g., theft or a public education campaign) on capture and participation rates can use the CCCM to understand the curbside program's impacts.

Line Item Cost Inputs - Each user is likely to have a slightly different way to allocate costs. For this reason, if you are trying to decide on which line to enter a cost, this is generally less important than ensuring the cost does not overlap with other inputs, as this would have an impact on total cost. For example, there are three places in the CCCM where insurance costs can be incorporated: in Table 1 under the dispatch yard operating expenses; in Table 14 under labor costs; and in Table 15 under collection route operating costs. While it is more desirable to allocate an accurate portion of total insurance costs to each component, it may not be practical to do that. For this reason, rather than agonize over where to input the cost, decide where the cost most appropriately belongs given your unique budget or accounting practices and recognize that while total cost will not be impacted, there may be a relative impact between cost components.

WORKSHEET MECHANICS

Modification to Worksheets - Worksheets are linked and have basic formulae input, so when cost variables are input or modified, many calculations are performed automatically. It is expected that users may want to modify the worksheet tables so they are more applicable to the specific scenario being analyzed. When modifying the tables, users should pay attention to how the modifications will impact existing formulae. Users should modify the worksheets as they feel necessary, but should *always make a back-up copy of the original worksheets prior to making any modifications*.

Saving worksheets - Under regular Excel operation, worksheets will re-open wherever the user left their cursor before saving the file. This can be confusing until the user is familiar with the program. Two special "save" buttons are provided at the bottom of each worksheet. The first button is titled: "Save: Return to Beginning Sheet". Clicking on this button saves the file and returns the cursor to the first worksheet, Dispatch Yard. The second button is titled: "Save: Return to Chart and Table Summary Sheet". Clicking on this button saves the file and returns the cursor to the Summary Worksheet.

Protecting Worksheets - To facilitate the user's ability to customize the CCCM for a specific situation, none of the cells in the worksheets are protected. To minimize the possibility of writing over cells containing formulae, *cells with formulae are identified with blue font* and usually have a white background (yellow cells identify the need for a user input). Users who want to protect these and other cells will find the protection command in the pull down menu under "Tools".

Linking Worksheets - Links are currently provided between worksheets when feasible. This facilitates the transfer of information between worksheets and minimizes data entry for the user. Users that want to create additional links can reference a cell in another worksheet by typing the worksheet name followed by an exclamation point and the cell address. This is called "referencing a cell". For example, to set up an automatic transfer of the information in cell A4 in the worksheet titled "material_quantities" into another cell, set the cursor in the cell into which the data should be transferred and type the following: material_quantities!A4.

Comparative Structure - The CCCM is structured so users can define a "baseline" scenario and then compare the baseline with another scenario. Table titles and data inputs suggest that the user will compare the baseline to a future year. However, it is not necessary that the comparison scenario be future-based. Users can compare differing collection systems within the same year, as well as compare two future programs.

Cell Notes - Users may wish to keep track of the assumptions they use when running different scenarios. One method that may be helpful is to utilize the cell note feature in Excel. Cell notes can be created by selecting the pull-down window Insert/Note and then typing the desired text. A red dot will appear in the upper-right corner of the cell to remind the user of the information stored there. These notes can be accessed in two ways: (1) with the cursor in the cell whose note is to be read, click on Insert/Note; (2) from the pull down menus choose Tools/Options/View/ Show/Info Window.

Charts - Eight charts that visually depict cost data in a comparative format are included. These charts can be accessed directly by clicking on the appropriate worksheet tab or the user can click on the appropriate button in the Summary Worksheet and view or print the chart. When viewing the chart, the user can return to the Summary Table by clicking on the "Return" button which is located below the chart. The charts are completely self-generated. All data is transferred automatically from elsewhere in the CCCM.

Color Coding - Certain colors are used in the workbooks to indicate different meanings. Cells containing formulae usually have blue font and a white background. Cells requiring a user input are generally yellow. Cells where user inputs are optional, meaning the user can choose auto fill-in or enter the data directly, are a yellowish-brown color.

CONSIDERATIONS AND CONSTRAINTS: PROPER USE OF THE CCCM

Planning v. Accounting Tool - Local governments requested the CIWMB undertake this effort as a follow up to the FCM. What staff found in designing this tool was that it was impossible to design a precise accounting tool that was still sufficiently flexible so that it could be applied to a variety of curbside collection circumstances. To meet the conflicting needs of various California jurisdictions, it was necessary to focus the model to serve as a cost analysis and planning tool. Thus, while the model provides for a line item accounting of the types of costs that must be considered in a curbside collection program, it would be inappropriate to consider it an accounting tool.

Rate Setting - There are many factors that weigh against using this model as the sole tool to set rates or evaluate whether an existing rate is accurate. Perhaps the most obvious is that, as stated above, the CCCM is not an accounting tool. The large number of variables incorporated into a rate prohibit the development of a generic tool that can be used to establish rates. Communities are subject to a myriad of localized conditions that are not taken into account in the CCCM. For example, in some localities, collection rates may be used to subsidize general fund activities, while in other communities the inverse may be the case, general funds are used to subsidize collection.

Another important aspect to consider is that collection is only one facet of an integrated system. Other costs, such as facility costs, costs for sorting and preparing materials for market, or the cost for a household hazardous waste facility may need to be recouped through collection rates. In some communities, collection rates may be used to provide an incentive to engage in a particular behavior such as recycling. For example, to provide an incentive to recycle, a portion of this cost may be included in the refuse collection fee. Because the CCCM is not designed to incorporate data involved in these complexities, users are cautioned against using the CCCM outputs to establish or evaluate rates.

Changes in Costs Over Time - Another reason the CCCM should only be considered a planning tool is because it averages total costs over a given number of years. Thus, year 1 costs are assumed to be roughly equivalent to year 10 costs. This may not be true for several reasons. For budgeting purposes it may be necessary to pay certain costs (e.g., curbside bins) up-front, not continuously. These costs truly are not averaged out over an amortization period, they are incurred one time at start-up. While total cost is not affected, this would result in year 1 costs being an underestimate and subsequent annual costs being an overestimate. Users should consider how their budget process does or does not reflect this assumption.

Non-Cost Considerations - The CCCM only addresses costs. While it is essential to recognize the existing organizational, administrative, and political environment when planning collection systems, these are jurisdiction-specific variables that cannot be readily quantified and are beyond the CCCM's scope. Users will need to determine whether the particulars of a curbside collection program in their jurisdiction are appropriate given the unique parameters of their situation. While the CCCM is limited to collection costs, it is designed as an extension of the FCM which enables users to determine facility construction and operations costs. Used together, the FCM and CCCM provide a comprehensive waste management system cost analysis tool.

Universal Applicability - As mentioned above there is a direct trade-off between specificity and flexibility, the latter is of paramount importance if the CCCM is to be applicable to more than a few jurisdictions. CIWMB staff attempted to incorporate as much specificity as possible without decreasing the usefulness of the CCCM for any jurisdiction. As a result, the CCCM can be used by virtually any community.

Scenario Analysis - The CCCM can be used to analyze the relative costs and diversion benefits of various curbside collection programs. The user can vary sorting schemes or collection frequency and see how overall costs are impacted or the user can see how costs might be expected to change over time. Thus, while it is not recommended that the CCCM be used to set rates, it can be useful in determining the relative cost effectiveness of various collection scenarios. To compare various collection systems, the CCCM should be used in conjunction with the FCM. This is because different collection systems are implemented in tandem with different types of facilities, which will, in turn, impact overall system costs.

Curbside collection systems for recyclables are highly specialized; they are adapted to satisfy a jurisdiction's specific characteristics. For this reason, the greatest challenge in developing the CCCM was striking the proper balance between specificity and flexibility. The model must be specific enough to have meaning, yet must be sufficiently generic so that it can be adapted to multiple situations. To resolve this issue, CIWMB staff made explicit assumptions regarding the basic parameters used to define a recycling curbside collection system. In all cases, these assumptions are stated and an explanation is provided to assist users in customizing the spreadsheets.

Commercial vs. Residential Application - The CCCM is designed to evaluate residential curbside collection programs. While the waste generated at large, multi-family properties is certainly residential in nature, the style of trucks used, routing, and other variables are significantly different than those same parameters as applied to single-family homes. In fact, from a cost-allocation perspective, the service provided to many larger multi-family residences more closely resembles commercial collection service than residential service. For this reason, it is recommended that the user run scenarios for service routes encompassing single-family residences and multi-family residences (up to a maximum of six units) together, and scenarios for larger multi-family units separately.

CHAPTER TWO: APPLICATION

The overall flow of information through the CCCM is designed to establish annual dispatch yard and collection route costs, then sum both to enable a comparison of total costs for the baseline and model scenarios.

Below is a list of every piece of information needed to run the CCCM. The User will need the information for both the baseline and model scenarios. The more specific the information is to the scenario service region, the more accurate the results. When using the CCCM, a cell with yellow background indicates a user input. Yellowish-brown cells contain an optional fill-in formula. Following this list are the line-item instructions for each worksheet and table.

LIST OF USER INPUTS

DISPATCH YARD (Tables 1 and 2)

Capital Costs

- Land Acquisition:
  - Total cost
  - Interest rate, if financed
  - Loan term or facility lifetime
- Site Preparation:
  - Total cost
  - Interest rate, if financed
  - Loan term or facility lifetime
- Structures:
  - Shop: total cost
  - Office: total cost
  - Other structures: total cost
  - Interest rate, if financed
  - Loan term or facility lifetime
- Professional Services:
  - Total cost
  - Facility life
- Other Dispatch Yard Capital Expenses: annual cost

Operating Costs

- Utilities: annual cost
- Facility Maintenance: annual cost
- Taxes: annual cost
- Supplies: annual cost
- Insurance: annual cost
- Depreciation: annual cost
- Other Dispatch Yard Operating Expenses: annual cost

MATERIAL TYPES TO BE COLLECTED (Tables 3 and 4)

- Material types to be collected
- Density (in pounds per cubic yard) of each material to be collected (see Appendix A for sample data)

- The combination of materials to be collected in each truck compartment

JURISDICTION DEMOGRAPHICS (Table 5)

- Baseline and model scenario calendar year
- Base year population
- Population increase per year (by percent)
- Number of single-family households serviced
- Number of multi-family households serviced
- Average persons per single-family household
- Average persons per multi-family household
- Baseline Adjustment Methodology Information:
  - Number of persons employed in service area
  - Taxable transactions (dollar amount)
  - Consumer price index for base and model years (see Table 5A for sample data)
- Percent decrease in waste generation due to waste prevention between base and model years
- Annual percent change in population
- Annual percent change in employment
- Annual percent change in taxable transactions

WASTESTREAM AND RECYCLABLE MATERIAL CHARACTERISTICS (Tables 6 and 7)

- Service region's waste composition, by percent **(optional[3])**
  - Must include percentages for each of the following: materials
  - Paper: cardboard and bags, mixed paper, newspaper, high-grade ledger, other paper
  - Plastics: HDPE containers, PET containers, film plastics, other plastics
  - Glass: refill glass containers, CRV containers, other recyclable glass (clear and colored), other non-recyclable glass
  - Metals: aluminum cans, bi-metal containers, ferrous and tin cans, non-ferrous and aluminum scrap, white goods, other metals
  - Yard waste
  - Other Organics: food waste, tires and rubber, wood wastes, crop residues, manure, textiles and leather, miscellaneous organics, disposable diapers
  - Other Wastes
- Capture rates for each material to be collected
- Average or material-specific participation rate
- Number of set-outs per month
- Percent of "other recyclable glass" that is clear/flint versus colored

ROUTE AND TRUCK INFORMATION (Tables 8, 9, 10, 11, 12, and 13)

- Number of days (out of 14) that trucks will be collecting on the route in question
- Number of single-family and multi-family households that will be served on each day of the route
- Whether you want the scenario based on the route-day with the highest number of households served, or based on the average number of households served
- Cubic yards per truck compartment
- Number of hours per day that trucks are used for the route (not including employee breaks)
- Contingency time
- Average number of minutes from the dispatch yard to the start of the route
- Average number of minutes from the disposal/processing facility to the dispatch yard
- Average number of minutes per stop
- Average number of minutes between stops

[3] The program provides automatic default data for statewide waste characterization based on information reported in Source Reduction and Recycling Elements. Entering the waste characterization data for the specific service region will provide a more accurate estimate of the quantity of recyclables generated in that service region.

- Average number of minutes to the facility where the vehicle is unloaded
- Average number of minutes to unload the truck
- Average number of minutes to get back on route

COLLECTION ROUTE COSTS (Tables 14, 15, 16 and 17)

Labor and Overhead

- Employee job titles/classifications
- Number of employees under each job classification
- Average salary for each job classification
- Salary Benefits: additional percent for each job classification

Capital Costs (these costs will be annualized in the program)

- Cost per collection vehicle
  - Number of reserve vehicles **(optional)**
  - Interest rate, if financed
  - Loan term or expected life
- Cost per supervisor vehicle
  - Number of vehicles
  - Interest rate, if financed
  - Loan term or expected life
- Number of collection containers per household
  - Unit cost
  - Amortization term
- Other capital costs (annualized)
- Contingency cost (enter as a percent)

Operating Costs

- Percent of containers that will require replacement annually
  - Cost per container
  - Amortization term
- Collection vehicles:
  - Cost per mile
  - Miles per day
  - Days operating per year
  - Number of vehicles operating per day
- Supervisor vehicles:
  - Cost per mile
  - Miles per day
  - Days operating per year
  - Number of vehicles operating per day
- Insurance
- Supplies
- Depreciation
  - Collection Vehicles
  - Supervisor Vehicles
- Other operating costs

WORKSHEET AND TABLE INSTRUCTIONS

Each worksheet contains the same tables for the baseline and model scenarios. Because the descriptions and line-item inputs for both are identical, descriptions and instructions will be provided only for the baseline tables. Also, when use of the two workbooks differs, this will be explained. Otherwise the same instructions apply for both workbooks.

Reminder: Cells that require user inputs are highlighted in yellow. Cells with formulae have blue text and a white or yellowish-brown background. **Cells with formulae are not protected!** While analyzing a scenario it is helpful to back-up the file before making modifications that impact formulae. If data is entered over a formula (i.e., the user overrides the formula), that formula is deleted. The only way to return it, is not to save changes to the program when closing. To ensure there will always be a "clean" copy of the CCCM, copy the entire diskette before using it.

1.0 WORKSHEET: DISPATCH YARD COSTS

Worksheet Composition: Tables 1 & 2, Baseline & Model Dispatch Yard Costs

1.1 Table 1: Baseline Dispatch Yard Costs

Purpose and Description: Establish capital and operating costs for the Dispatch Yard, the facility where refuse and recycling trucks are housed. The table is separated into two portions; the top portion is used to estimate capital costs and the bottom to estimate operating costs. The subtotals for capital and operating costs are summed to obtain the total annual cost for the dispatch yard. Results from this table are transferred into Table 18, Cost Summary.

Instructions: The capital cost portion of this table contains five line item costs; the operating cost portion contains eight line item costs. Each has appropriate sub-components. The terms A, B, C, D and E are used below to assist in explaining the sub-components and are not displayed on the actual table.

Capital Costs

Capital expenses are moneys invested in real assets; for example, to acquire, construct, replace and/or improve equipment, land, or structures.

Line 1: Annual Cost: Land Acquisition

Definitions: Line 1 and its sub-components address costs associated with the purchase of the land used for the dispatch yard.

Instructions: Line 1 has three sub-components: A) total cost for land acquisition; B) interest rate, if financed; and C) loan term or facility lifetime in years.

If a dispatch yard already exists and there is no lien against the land, override the formula in Line 1 by entering "0".[4] If land must be acquired, enter the cost of the land in sub-component A, the interest rate (in decimal form) in sub-component B, and the loan term (in years) in sub-component C. If the land purchase is not financed, enter "0" in sub-component B and enter the facility life (in years) in sub-component C. When this information is entered into the appropriate cells, the annual cost is calculated.

If the dispatch yard shares the site with another facility, then allocate a percentage of the total cost to the dispatch yard and enter that amount in sub-component A. If the site is leased, then this is considered an operating expense and should be entered in Line 13 of the operating cost portion (see below).

Line 2: Site Preparation

Definitions: Line 2 should reflect all construction-type site improvement costs incurred in preparing the site. These costs could include grading, paving, or installing gas tanks.

Instructions: Line 2 has three sub-components: A) total cost of site preparation; B) interest rate, if financed; and C) loan term or facility lifetime.

If site preparation is not necessary, override the formula in Line 2 by entering "0". If it will be necessary to construct the facility, enter the total cost of preparing the site. In sub-component B enter the interest rate (in decimal form) if the site is financed, or enter "0" if it is not financed. In sub-component C, enter the loan term (in years) if the facility is financed, or the facility life (in years) if it is not financed. When this information is input into the appropriate cells, the annual cost will be calculated automatically.

If the dispatch yard shares the site with another facility, then allocate a percentage of the total cost of site preparation to the dispatch yard and enter that amount in Line 2, sub-component A.

Line 3: Structures

Definitions: Line 3 should reflect the costs of any structures on the site that relate to the operation of the dispatch yard.

Instructions: Line 3 has five sub-components: A) total cost for shop; B) total cost for office; C) total cost for other structures; D) interest rate, if financed; and E) loan term or facility lifetime.

[4] If it is necessary to override the formula here because the cost is "0", you may want to make a back-up copy of the file. This is recommended whenever formula override occurs. This caution will not be repeated every time an override is mentioned.

If structures will not be constructed on-site, override the formula in Line 3 by entering "0". If structures will be constructed, enter the total cost of construction for the respective structures in the appropriate sub-component. If the project is financed, enter the interest rate (in decimal form) in sub-component D and the loan term (in years) in sub-component E. If the structures are not financed, enter "0" in sub-component D and enter the structure life (in years) in sub-component E. When this information is entered into the appropriate cells, the annual cost will be calculated automatically.

If only a portion of a structure in sub-component A, B or C is used for dispatch yard operations, then allocate the percentage of the structure's total cost to the dispatch yard and enter that amount in Line 3, sub-component A, B or C, as appropriate. If the structures will be leased, this is considered an operating expense and should be entered in Line 7 or 13 in the operating costs section.

Line 4: Professional Services

Definitions: Examples of professional services required for the site could include legal counsel, permit assistance, or preparation of environmental documents. Some may prefer to consider this an operating expense. These users can enter this expense in Line 13 of operating costs instead. We have included it here assuming that professional services will relate to the use of a capital asset.

Instructions: Line 4 has two sub-components: A) total cost for professional services and B) facility life in years. It is assumed that professional services will not be financed. Enter the total cost of professional services in sub-component A, and enter the facility life in sub-component B. The annual cost will be calculated automatically.

Line 5: Other Dispatch Yard Capital Expenses

Definitions: Any capital costs that do not apply to the previous categories should be entered on this line. As defined previously, capital costs cover acquisition, construction, replacement, and improvements to equipment, land, or structures.

Instructions: If there are no other dispatch yard capital costs, enter "0" in Line 5. Otherwise, enter the annual cost of other capital expenses incurred at the dispatch yard. If the annual cost is unknown and it is necessary to determine it based on total cost, then follow these steps:

> If financing is necessary, replicate sub-components A, B, and C from Line 1 and copy the formulae from Line 1 to Line 5. The Excel program automatically adjusts the formulae to calculate data from the correct lines.
>
> If financing is not necessary, simply divide the total cost by the number of years for a resulting annual cost, or replicate sub-components A and B from Line 4 and copy the formulae from Line 4 to Line 5.

Operating Costs

These costs include expenses associated with operating and maintaining capital assets at the dispatch yard, excluding collection route and labor costs, which are calculated on a different worksheet. Leases for equipment, land, or structures should be included as operating, not capital, expenses.

Line 6: Utilities

Definitions: Locally provided services such as water or electricity.

Instructions: Enter annual costs for all utilities.

Line 7: Structures Maintenance

Definitions: Examples of such costs include cleaning, roofing, plumbing, and painting services or maintenance contracts.

Instructions: Annual maintenance costs for on-site structures is estimated to be 1% of total construction cost. The formula on this line automatically calculates this based on the total construction cost from the capital cost section. Users wishing to substitute another figure should override the formula by entering the cost directly into Line 7. If structures are leased the cost can be entered here, but more appropriately belongs in Line 13. Do not overlap maintenance costs with labor costs.

Line 8: Facility Maintenance

Definitions: Examples of such costs include upkeep of asphalt, site drainage, landscape maintenance and fencing.

Instructions: Enter the annual cost for facility maintenance. Do not overlap maintenance costs with labor costs.

Line 9: Taxes

Definitions: Examples include property taxes and other assessments.

Instructions: If the facility is privately owned or operated, enter the annual tax assessment. If the facility is publicly owned and operated, then enter "0".

Line 10: Supplies

Definitions: Examples include office and washroom supplies. Do not overlap with structure or facility maintenance costs or with on-route supplies.

Instructions: Enter the annual cost of dispatch yard supplies.

Line 11: Insurance

Definitions: Examples include liability, flood and fire insurance. Do not overlap with collection route or labor-related insurance costs unless they are not covered in Tables 14 or 15.

Instructions: Enter the annual cost of insurance for the facility.

Line 12: Depreciation

Definitions: Tax law generally considers capital expenditures for assets such as structures and equipment to depreciate, or lose value over time. This implies the setting aside of resources to finance new investment when the useful life of existing buildings and equipment expires. Some jurisdictions include depreciation in their cost calculations. Others do not. Those that do include depreciation, may use one of several methods to calculate it. For this reason, a depreciation formula is not built into the table.

Instructions: If you do not wish to calculate depreciation, enter "0" in Line 12. Users who opt to include depreciation should be sure to include not only new structures related to the dispatch yard, but also depreciation associated with existing equipment or structures that have been purchased and paid for, but are still depreciating. These users should input the depreciation formula they want to use in Line 12. The simplest depreciation formula is to divide an item's total cost by its useful life. This assumes a "straight line" depreciation, which credits the owner an equal amount for each year.

Line 13: Other Dispatch Yard Operating Expenses

Definitions: Any operating costs that do not apply to the previous categories should be entered on this line. Leases for land or structures should be included here as should professional services, should the user feel they are more appropriately considered an operating cost.

Instructions: If there are no other dispatch yard operating costs, enter "0" on this line. Otherwise, enter the annual amount of other operating costs associated with the dispatch yard and not elsewhere included.

1.2 Table 2: Model Scenario Dispatch Yard Costs

The line item costs for Table 2 are identical to Table 1, so they will not be reviewed. Please consult the instructions for Table 1, should you have questions regarding Table 2. Data inputs differ in Table 2 because they address the model, not baseline, scenario.

2.0 WORKSHEET: MATERIAL TYPES

Worksheet Composition: Tables 3 & 4, Baseline & Model Materials Collected. These look-up tables are designed as reference tables which later tables use to obtain information. As such, CCCM calculations are very sensitive to their structure. When making any changes to table structure, consult this User's Manual.

2.1 Table 3: Baseline Materials Collected

Purpose and Description: The purpose of this table is to specify the materials collected and their densities. This information is automatically transferred to the Material Quantities Worksheet where it is used to determine the amount of material collected (see Chapter 2, Section 3.0). This information is also used in Tables 9 and 10 to determine how much material is collected each day and how many collection vehicles are required to service all accounts.

Instructions for Source Separated Workbook (cccmsep2.xls): In Column C, input material densities achieved in the truck during collection based on pounds per cubic yard. Users may enter their own data or use the sample material densities provided in the worksheet titled, "Densities", a copy of which is found in Appendix A. Enter "0" if a material is not collected.

Downstream tables draw on this table for data, so it is essential that this table be filled out properly. Users must indicate whether their program accepts a material by putting a "1" in Column D if the material is collected and a "0" in Column D if the material is not collected. *It is essential that all rows in Column D contain either a "1" or a "0".*

Likewise, each line in Column E must have either a material code or a "0". Users must input the materials being collected in each of the vehicles compartments. Space is provided for four compartments, each with four materials. Materials in Column E must be input using the codes in Column B. The yellow/shaded lines in Column E under the white compartment headings must be filled in from top to bottom. The example below shows Columns A, B, C, D, and E properly filled out:

COLUMN A Material Name	COLUMN B Codes	COLUMN C Density	COLUMN D Collecting?	COLUMN E Materials in Compartment
				Compartment 1
Aluminum Cans	AL	91	1	AL
Bi-Metal Cntrs.	BiMtl	141	1	BiMtl
Colored Glass Cntrs.	ColGl	0	0	CRVGl
CRV Glass	CRVGl	466	1	0

Board staff identified the materials that are most likely to be picked up in curbside programs and included them in this table.[5] If a material is not listed, it may be added, but a code name must be assigned to it. ALSO, Column B, the Codes field, *must be in alphabetical order* from A to Z for the CCCM to function properly. Thus, it may be necessary to sort Columns A through D, using Column B as the key. If materials are added, they must correspond to one of the existing waste component categories found in Table 6, and Tables 6, 8, and 9 will need to be adjusted. In most cases, formulae in adjacent cells can be replicated to newly added lines, but the user should check the copied formulae to ensure the relative references are intact.

Because making structural changes to the CCCM is somewhat complicated and it is unlikely that additional materials or compartments will be necessary, only one example of how to modify the structure is provided. To add space for additional materials to be included in a compartment, follow these steps:

- STEP 1: Insert as many additional cells as needed in Column E under each compartment. This is done by selecting Insert/Cells/Shift Cells Down/OK. Table 4, which is located below Table 3, will need to be adjusted to account for the new cells in Column E. In the white row between Tables 3 and 4, select Columns A, B, C, and D and then select Insert/Cells/Shift Cells Down/OK. Repeat once for each cell added to Column E.

- STEP 2: Insert the appropriate code from Column B into the new cells in Column E.

- STEP 3: Go to Table 9 in the Collection Capacity Worksheet. Insert new cells in Columns T through AA that correspond to the cells added in Table 3, Column E. For example, if a cell for a fifth material was added in compartment 1, use the technique described in Step 1 to add new cells under compartment 1 in Table 9.

- STEP 4: Still in Table 9, copy the formulae from Columns V, W, and X in the cells above the new cells into the new cells. Relative referencing should result in accurate formulae, but check to be sure the proper references are maintained.

- STEP 5: Formulae in the compartment summary lines (Table 9) may need to be modified to include the new cells. In Columns W and X make sure that the formulae include the new cells.

Instructions for Commingled Workbook (cccmcom2.xls): If materials are collected commingled, then use the commingled version of the CCCM. Enter

[5] The list of materials was derived from the Department of Conservation's extensive database which contains information on 500 curbside collection programs.

material densities in Column C or "0" if the material is not collected. Enter "0" for all materials NOT being collected in Column D and "1" for those materials that are collected.

Compartment designations in Column E are not necessary for commingled collection; all materials should be listed under Compartment 1. Use the codes in Column B to list materials in Column E. All yellow/shaded lines in Column E should either have a material code or a "0". Material codes should be input from top to bottom in Column E. If extra lines are needed, use the process described above to modify the model structure.

2.2 Table 4: Model Scenario Materials Collected

Table 4's structure is identical to Table 3's, so it will not be reviewed. Please consult the above overview of Table 3, should you have questions regarding Table 4. Users should input information relevant to the scenario they are modeling.

3.0 WORKSHEET: MATERIAL QUANTITIES

Worksheet Composition: Tables 5 and 5A, Jurisdiction Attributes and Tables 6 and 7 Quantity of Recyclables.

3.1 Table 5 and 5A: Jurisdiction Attributes

Purpose and Description: The information in Table 5 is used to estimate baseline and model scenario waste generation for single-and multi-family households. The factors generated in Table 5 will impact the amount of waste generated in Tables 6 and 7.[6]

Instructions: Each line item data input is followed by suggested sources for information. In addition to each referenced source, city and county governments often have regional information applicable to each line item.

For the baseline scenario, users must input the following data:

- Base year
- Population of the region served by the collection route. See data from the United States Bureau of the Census and the California Department of Finance.

[6] Baseline information is extrapolated to the model year using the Base Year Adjustment Method adopted by the CIWMB and then adjusting for waste prevention, if desired. The factor used to extrapolate generation (Line 39) is multiplied by baseline per capita generation after it has been adjusted for waste prevention.

- Number of single-family and multi-family households in the collection route region. See data from the United States Bureau of the Census and the California Department of Finance.

- Average number of persons per household. See data from the United States Bureau of the Census and the California Department of Finance.

- Number of persons employed. See data from the *Governor's Annual Economic Report.*

- Dollar amount of taxable transactions. See data from the *Governor's Annual Economic Report.*

- Consumer price index (CPI) for the base year. The CPI is compiled by the California Department of Finance (included as Table 5A).[7]

- Average waste generation in pounds per person per day. See the Waste Generation component of the *Source Reduction and Recycling Elements* (SRREs) that local jurisdictions are required to submit to the CIWMB.

For the model scenario, users must input the data listed below. The same sources of information referenced above for the base year apply to the model year. The user should note that the following assumptions are made with respect to model year data: (1) the number of households increases at the same rate as population and (2) the persons per household remains constant. Users can override these assumptions by directly inputting data.

- Model year
- Percent decrease in waste generation (between the baseline and model scenarios) due to waste prevention
- *Annual* percent change in population (if decreasing, enter as a negative number)
- *Annual* percent change in employment (if decreasing, enter as a negative number)
- *Annual* percent change in taxable transactions (if decreasing, enter as a negative number)
- Consumer price index for the model year.

3.2 Table 6: Baseline Quantity of Recyclables

Purpose and Description: Several important calculations take place in Table 6. Regional waste generation by material type is established.[8] Generation is

[7] Source: US Department of Labor, Bureau of Labor Statistics.

[8] Source: CIWMB Interim Database, updated February, 1995.

multiplied by the capture rate to determine the pounds of each material that is available for collection at the average single and multi-family residence on an annual basis and per set-out. Available material is multiplied by the participation rate to calculate the total tons actually collected in the service area for one set-out. Resulting data are transferred to Table 8, where the amount of material collected each day is determined.

Instructions: Default data pertaining to waste composition for generation is already input and is the same for the baseline and model scenario (Column E). This data reflects statewide residential waste composition as reported by local jurisdictions in their SRREs.[9] Users that prefer to substitute local data should input their information over the default composition. Planning documents required by the IWM Act (the primary source of waste generation information for many jurisdictions) do not separate glass containers by color, but many recovery programs do. *The user must input the percent values for both clear and colored non-CRV recyclable glass (in Cells E25 and E26) for the program to function properly.*

In Column F, per capita generation for specific materials is calculated based on the composition data and the pounds per day generation from Table 5. In Column G, per capita generation is multiplied by the population in Table 5 to obtain average regional generation in tons per day. The term "region" is used to denote the CCCM's generic application, which can be used for a specific route, jurisdiction, or any other area for which data is available.

For each material type, users must then input the capture and participation rates *in decimal form* in Columns H and I. Capture rate refers to the percent of a material that will be recovered in a household for recycling. For example, 95% of generated newsprint will be recovered from participating households, the other 5% will be used to line bird cages and, thus, is unavailable for recycling in the curbside program. Buy-back centers and theft are other variables that impact the capture rate. Participation rate refers to the percent of households in the study area that will place recyclables at the curb for recovery.

Regardless of which materials are being collected, Columns H, I, and J must be completely filled in. To facilitate this process, automatic cell fill-in is provided for the participation rate and number of set outs per month, Columns I and J. The user must answer Question 1 in Column D regarding the participation rates. If the user wants all participation rate values to be the same, enter "Y" in Cell D4 and the participation rate as a percent in decimal form in Cell D5. If the user prefers to enter separate participation rates for each material type, enter "N" in Cell D4 and then enter the rates as a percent in decimal form in Column I. It is assumed that each material type will have the same number of set-outs per month. Enter this number in Cell J9 and the number will be copied down the Column. For Column H, capture rate, the user must input the capture rate as a

[9] Source: CIWMB Interim Database, updated February, 1995.

percent in decimal form for each material that is being collected. If a material is not collected, enter "0".

Columns K, L, M, and N show the amount of materials that are available for collection after capture rates are applied to material generation. In Column O, these figures are further adjusted to account for the participation rate.

3.3 Table 7: Model Scenario Quantity of Recyclables

Instructions regarding Table 7 are identical to those for Table 6 so they will not be repeated. Users should input information relevant to the model scenario and refer to the discussion of Table 6 for assistance.

4.0 WORKSHEET: COLLECTION CAPACITY

Worksheet Composition: Tables 8 and 11, Baseline and Model Amount Collected Per Day; Tables 9 and 12, Baseline and Model Truck Capacity; and Tables 10 and 13, Baseline and Model Number of Collection Vehicles.

4.1 Table 8 Baseline Amount Collected per Day

Purpose and Description: This table establishes the pick-up schedule to which the model scenario will be compared. It is structured to allow for collection as infrequently as every two weeks, which should accommodate most communities. This table establishes the tons of various recyclables requiring collection each day. When incorporated into Table 9, this data helps determine the number of trucks required to service the region. If additional lines were added in Table 3, it will be necessary to modify this table as well. Review the instructions for Table 3 to ensure you completed this modification.

Instructions:

SPECIFY PARAMETERS (Rows 4 and 5)

At the top of the table, under the category "Specify Parameters", there are questions that the user must answer for the worksheets to function properly. Users must respond to the following questions:

A) Row 4: Enter the number of days in a 14-day period that the trucks collect refuse. This number must correspond to the number of pick-up days for which data is provided in Table 8, Row 9. For example, if each day under Days 1-5 and 8-12 shows 2,000 total households served, then the number of days in the collection cycle is 10. If recyclables are only collected on Days 1-5, then enter "5" in Row 4.

B) Row 5: Establish whether calculations are to be performed based on average day or peak day. "Average" day is determined by dividing the

total number of households and recyclables by the number of days for which service is provided (i.e., Row 4). "Peak" day is the day on which the greatest number of households are served. If modeling is done on peak days (enter an "N" in Row 5), there may be significant over-capacity in the system, which would be costly. Conversely, if modeling is done based on an average day (enter a "Y" in Row 5), it may be necessary to compensate for under-capacity on some days. Users should consider the magnitude of difference between the amount of recyclables collected on an average and a peak day when deciding which is preferable for modeling. If there is great disparity, it may be helpful to reassess route formation.

TOTAL HOUSEHOLDS SERVED (Rows 9-11)

Users must input the number of single-family and multi-family households served for each day of the collection cycle. If no homes are served on a given day, then a "0" should be input on lines 10 and 11 under that day. All cells in the two rows below the Day 1-14 headings should contain a value. Once the number of single family and multi-family households served is input, the worksheet automatically calculates the average, peak, and total number of households served (Column P). The value in Cell P9 should equal the value in Table 5 Cell A6.

TOTAL TONS COLLECTED (Rows 12-29)

Once the total number of households served is input, the worksheet automatically calculates the tons of each recyclable collected per day. The values in Rows 13-29 represent the daily tonnage collected for each material on each day. Also shown for each material type is the average, peak, and total amounts collected during one collection cycle, or set-out.

4.2 Table 9: Baseline Truck Capacity

Purpose and Description: The objective of this table is to determine the number of households that can be served before the truck compartments reach capacity. The calculation is based on the amount of material collected per household, the material density, and truck compartment size. This information, in turn, contributes to the determination of how many trucks are necessary (Table 10).

Instructions: For each compartment, users must input its size in cubic yards (Column U). If a truck has fewer than four compartments enter a "0" in Column U for those not used. Remaining information is calculated automatically.[10] Because there are laws regulating maximum vehicle weight, Column Z is included to calculate the tons of material in a full compartment. The user can

[10] If more than one material is collected in a compartment, the amount of each material entering the compartment is weighted based on the relative proportion it comprises (Table 8, B13-O29).

compare this figure with local ordinances specifying weight constraints to help ensure compliance with these ordinances.

Users will want to note the number of trips required to service all accounts (Column Y). Due to varying compartment size and material densities, compartments may not fill up simultaneously. Compartment 1 may fill up after servicing 125 households, whereas Compartment 2 may fill up after only 70 households. The smaller the spread in the number of trips required to service all accounts, the more efficient the system. To easily view this spread, the table determines the maximum and minimum number of trips necessary to collect the materials based on compartment volume constraints (see the bottom of Column Y). If the disparity is wide, the user should double-check the densities entered for each material or consider changing the compartment material combinations.

Calculations in this table are performed assuming a collection vehicle only has time to unload once a day and that it does so when the first compartment fills up. Therefore, the values in Column Y indicate the number of times a single truck would reach capacity each day while servicing all the accounts as defined in Table 8. Table 10 will modify this assumption.

4.3 Table 10: Baseline Number of Collection Vehicles

Purpose and Description: Based on user inputs, the number of times a truck can unload during a shift is calculated, as is the actual number of collection vehicles that will be required to service all accounts. Calculations are based on the collection schedule established in Table 8.

Instructions:

The user enters the number of hours for each shift, percent contingency time (in decimal form), and various times associated with discrete portions of the collection process, such as minutes per stop. If a user wishes to enter a figure that is less than a minute, then enter the amount as a decimal. For example, if the average stop is 30 seconds (one-half minute), enter ".5".

The CCCM will not work properly if user inputs result in trucks not having time to reach capacity at least once during a shift. If this occurs the CCCM will calculate the number of trucks needed to service all accounts, but it cannot take shift time constraints into account, so it will underestimate the number of trucks. To compensate for this, the user can input the number of trucks directly in Cell AC19 or change assumptions, so trucks reach capacity at least once per shift. In most cases this change will increase efficiency.

4.4 Table 11: Model Scenario Amount Collected per day

Instructions regarding Table 11 are identical to those for Table 8. A technical difference is that the information in this table will be fed into Tables 12 and 13.

Users should input information relevant to the model scenario. Please consult instructions for Table 8, if you have any questions.

4.5 Table 12: Model Scenario Truck Capacity

Instructions regarding Table 12 are identical to those for Table 9, so they will not be repeated. Users should input information relevant to the model scenario. Please consult instructions for Table 9, if you have any questions.

4.6 Table 13: Model Scenario Number of Collection Vehicles

Instructions regarding Table 13 are identical to those for Table 10, so they will not be repeated. Users should input information relevant to the model scenario. Please consult instructions for Table 9, if you have any questions.

5.0 WORKSHEET: COLLECTION ROUTE COST

Worksheet Composition: Tables 14 and 16, Baseline and Model Labor & Overhead Cost, and Tables 15 and 17, Collection Route Cost.

5.1 Table 14: Baseline Labor & Overhead Cost

Purpose and Description: This table is structured to develop separate estimates for labor and overhead costs for the collection route. The resulting data are transferred to the operating costs section of Table 15.

Instructions: Basic job titles are specified; however, these may be altered or added to as necessary. For each job title listed, users input the number of employees with the job title, average salary, and benefits (enter as a percent of salary). The spreadsheet calculates salary with benefits, cost for all employees with the same job title, and total cost.

If adding job titles, the user must replicate the formulae in Columns E and F and check Column G to make sure that all line items are included in the total. For example, if "Janitor" is added to the bottom of the Overhead Cost section (say in Line 14), then the following formulae should be present:

Line 14, Column E: =+C14*(1+D14)
Line 14, Column F: =+E14*B14
Line 10, Column G: =SUM(I11:I14)

5.2 Table 15: Baseline Collection Route Cost

Purpose and Description: This table sums capital and operating costs related only to the collection route. This information is fed into Table 18 and used to compare baseline and model scenario program costs.

Instructions: The capital cost portion of this table contains five line item costs; the operating cost portion contains nine line item costs. Each has appropriate sub-components. The terms A, B, C, D and E are used below to assist in explaining the sub-components and are not displayed on the actual table. Users input cost data and the CCCM calculates the annual capital, operating, and total costs for the collection route.

5.2a Capital Costs

Capital expenses are moneys invested in real assets; for example, to acquire, construct, replace and/or improve equipment, land, or structures.

Line 1: Annual Cost Collection Vehicles

Definitions: Includes annual costs associated with the purchase of collection route vehicles.

Instructions: Line 1 has four sub-components: A) number of vehicles; B) cost per vehicle; C) interest rate, if financed; and D) loan term in years.

The number of collection vehicles that will need to be purchased is transferred automatically from Table 10 into sub-component A. If users want to have spare trucks in reserve they will need to add this to the formula in Cell I5 or override the formula by inputting the figure directly. Then input the cost per vehicle in sub-component B, the interest rate (in decimal form) in sub-component C and the loan terms (in years) in sub-component D. If the vehicle purchase will not be financed, then enter "0" in the interest rate cell and the expected life of the equipment (in years) in sub-component D. If vehicles are leased, this is considered an operating expense and should be entered in Line 14, Other Operating Costs.

Line 2: Annual Cost Route Supervisor Vehicles

Definitions: Includes annual costs associated with purchase of route supervisor vehicles.

Instructions: Line 2 is essentially the same as Line 1. The same instructions apply. Please remember that if the vehicles are to be leased, this is an operating expense and should be entered in Line 14, Other Operating Costs.

Line 3: Annual Cost of Curbside Collection Containers

Definitions: Includes the annual cost to purchase containers necessary to initially set-up the collection program. This is a one-time capital cost that is annualized, but not financed. Bin replacement is considered an operating expense and is found in Line 8.

Instructions: Line 3 has four sub-components: A) number of containers per household; B) number of households; C) unit cost; and D) amortization term in years. In sub-component A users input the number of containers that will be given to each household. The number of households is transferred automatically from the Material Quantities worksheet (Table 5) to sub-component B. Users may adjust this figure manually if desired. Enter the unit cost per container in sub-component C and the amortization period in years in sub-component D.

Line 4: Other Annual Capital Costs

Definitions: Includes other capital costs that do not fall into previous categories.

Instructions: Enter any additional capital costs associated with the collection route. Refer to Chapter 2, Section 1.0, Table 1, Line 5 for instructions on how to determine annual cost based on total cost.

Line 5: Contingency

Definitions: A portion of the capital cost that is set aside and then made available if unforeseen capital expenses arise.

Instructions: Enter the percent (in decimal form) of annual capital costs that should be added. Enter "0" if you do not want to include a contingency.

5.2b Operating Costs

Operating costs do not include investment in real property. Operating costs include those costs associated with the collection route's day-to-day functioning. Only include route costs. Dispatch yard costs have already been calculated in Table 1.

Line 6: Labor

Definitions: Expenses associated with the human resources necessary to operate the collection route.

Instructions: No user inputs are necessary as all data pertaining to labor is transferred automatically from Table 14.

Line 7: Overhead

Definitions: Costs related to managing human resources and business administration.

Instructions: No user inputs are necessary as all data pertaining to labor is transferred automatically from Table 14.

Line 8: Replacement Curbside Collection Containers

Definitions: A certain percentage of containers require replacement annually. Hence, container replacement becomes an operating cost.

Instructions: In the respective sub-components input the percentage (in decimal form) of containers that will require annual replacement, the cost per container, and the amortization term (in years). Many recycling coordinators estimate annual replacement at about 5%.

Line 9: O&M Collection Vehicles

Definitions: Include the costs associated with operating and maintaining the collection vehicles.

Instructions: In the respective sub-components, enter the operating and maintenance cost per mile, the average number of miles a vehicle is driven per day, the number of days per year that a vehicle operates, and the number of vehicles that operate per day. These inputs are automatically multiplied to obtain the operating and maintenance costs for the collection vehicles.

Line 10: O&M Route Supervisor Vehicles

Definitions: Includes the costs associated with operating and maintaining the route supervisor vehicles.

Instructions: In the respective sub-components, enter the operating and maintenance cost per mile, the average miles a vehicle is driven per day, the number of days per year that a vehicle operates, and the number of vehicles that operate per day. These inputs are automatically multiplied to obtain the operating and maintenance costs for the collection vehicles.

Line 11: Insurance

Definitions: Includes liability and comprehensive insurance coverage.

Instructions: Enter any annual insurance costs associated with operating the vehicles. Do not overlap with the dispatch yard or labor expenses.

Line 12: Supplies

Definitions: Includes supplies used by employees during route operation such as uniforms, gloves and back-support belts.

Instructions: Input the annual expenditures for on-route operating supplies. Do not overlap with dispatch yard supplies.

Line 13: Depreciation

Definitions: Depreciation recognizes that capital assets such as vehicles lose value over time. This implies the setting aside of resources to finance new investment when the useful life of existing vehicles expires. Some jurisdictions include depreciation in their cost calculations. Others do not. Those that do include depreciation, may use one of several methods to calculate it. For this reason, a depreciation formula is not built into the table.

Instructions: If you do not wish to calculate depreciation, enter "0" in Line 13. Users who opt to include depreciation should be sure to include not only new vehicles, but also those which have already been purchased, but are still depreciating. These users should input the depreciation formula they want to use in Line 13. The simplest depreciation formula is to divide an item's total cost by its useful life. This assumes a "straight line" depreciation, which credits the owner an equal amount for each year.

Line 14: Other Operating Costs

Definitions: Any operating costs that do not apply to the previous categories should be entered on this line. If vehicles are leased, not purchased, then it would be appropriate to input the annual cost of the lease in this line.

Instructions: Space is provided to list up to three additional types of operating costs. Enter "0" if there are no additional operating costs.

5.3 Table 16: Model Scenario Labor & Overhead Cost

This table's structure and inputs are identical to those of Table 14, except they are for the model, not the baseline, scenario. To avoid repetition, instructions are not reviewed. Please consult the instructions for Table 14 if you have any questions.

5.4 Table 17: Model Scenario Collection Route Cost

The capital and operating cost line items for Table 17 are identical to Table 15, except they are for the model scenario. To avoid repetition, these instructions are not reviewed. Please consult the instructions for Table 15 should you have questions regarding Table 17.

6.0 WORKSHEET: SUMMARY

Worksheet Composition: Table 18, Cost Summary; Table 19, Diversion Attributed to Program; and Tables 20 and 21, Baseline and Model Scenario Cost Indicators. Located below each table are pairs of buttons. The first button can be used to view a chart and the second to print a chart. Each button pair corresponds to a different chart that compares cost data between the baseline and model scenarios. Chart data is derived

from the table above the button pair. When using a chart, the cursor can be returned to the Summary Table by clicking on the "Return" button at the bottom of the chart. All charts are completely self-generated; data is transferred automatically from elsewhere.

6.1 Table 18: Cost Summary

Purpose and Description: Table 18 shows dispatch, collection route, and total costs for the baseline and model scenarios. The costs are broken down to show capital and operating costs as well. The chart compares dispatch yard and collection route costs for baseline and model scenarios.

Instructions: All data is transferred automatically from upstream tables.

6.2 Table 19: Diversion Attributed to Program

Purpose and Description: Based on data developed in upstream tables, baseline and model scenario diversion, generation, and diversion rates are developed. This estimate only applies to diversion attributable to the curbside collection program. Although compliance with the IWM Act's 25% and 50% goals will be measured by a reduction in disposal, diversion is the only measurement that makes sense in evaluating the effectiveness of a curbside recycling program. Two charts compare tons per year diverted and generated and the diversion rate in both the baseline and model scenarios.

Instructions: All data is transferred automatically from upstream tables.

6.3 Tables 20 and 21: Baseline and Model Scenario Cost Indicators

Purpose and Description: Basic cost comparisons from Table 18 are further specified. Total cost calculations include both operating and capital costs. Truck fleet costs cover the cost of the whole fleet, not an individual vehicle. Likewise, labor costs cover the cost for all route employees, not including overhead, not an individual driver. Several charts are used to depict the baseline and model data in Tables 20 and 21. These charts are listed below:

- annual cost per household and per person;
- hourly truck fleet and labor cost (truck cost includes both capital and operating expenses; labor does not include overhead);
- truck and labor cost per ton diverted;
- total cost per ton diverted;
- annual capital and operating expenses are shown separately and cost components are broken out using four categories: labor, other, collection vehicle, and dispatch yard; and
- capital and operations cost per ton diverted are shown separately and cost components are broken out using four categories: labor, other, collection vehicle, and dispatch yard.

Instructions: All data is transferred automatically from upstream tables.

APPENDIX A: MATERIAL DENSITIES

The following densities were taken from the CIWMB report, "Conversion Factors for Individual Material Types", by Cal Recovery, Inc., 1991.

MATERIAL TYPE	FORM	SPECIAL NOTES	LBS/CY
PAPER			
Old Corrugated Cardboard	loose/flattened		50.06
	loose/whole		16.64
	baled	73"x42"x32"	713.00
	baled	87"x40"x29"	742.00
	baled (lo density)	48"x42"x32"	378.00
Kraft (Brown) Bags	baled (lo density)	69"x42"x40"	2221.71
	loose		34.43
Mixed Paper	loose		484.00
	baled/supermix	76"x38"x34"	635.00
Newspaper	baled		748.00
	loose/ w/o inserts		322.77
	low compaction truck		421.88
Magazines	baled(hi density)/glossy	3'x4'x5'	1082.70
Glossy Inserts	loose		570.37
High Grade Ledger	baled	76"x34"x38"	644.00
	loose/ w/o CPO		363.51
Telephone Directories	whole/stacked		944.91
Computer Printout	loose		519.40
	baled	76"x40"x30"	578.00
Paper-, Box-, Chip-board	whole		21.50
PLASTIC			
HDPE Containers	whole/milk&water		22.10
	whole/mixed colored		47.05
	baled /natural	91"x43"x32"	576.00
	baled/mixed colored	84"x44"x32"	511.00
PET Containers	baled	92"x43"x32"	414.00
	baled/clear w/o CRV	79"x43"x32"	443.00
	whole/CRV		34.58
	whole/mixed		43.30
PVC	loose		341.12
PS	loose/kernels		6.27
	loose/formed foam		9.62
Film Plastic	loose/mixed		22.55
	semi-compacted/LDPE		72.32
	semi-compacted/HDPE		75.96
Other Plastic	whole/SPI Codes 3-7		49.76
GLASS			
Clear CRV	whole		466.49
Clear non-CRV	whole		437.77
Green	whole		456.71
Mix Brown	whole		439.58
Mix Clear	whole		476.26
METAL			
Aluminum Cans	loose (crushed&uncrushed mix)		91.40
	baled	82"x41"x31"	399.00
Aluminum Foil	loose		48.10
	baled	65"x42"x29"	188.00
Bi-Metal Containers	uncrushed		141.36
Ferrous Food/Bev. Cntrs.	loose		144.32
	cubed	29"x21"x24"	2093.00
YARD WASTE			
Leaves	loose/dry		343.70
Grass	loose/fresh clippings		280.22
Prunings	shredded		527.00
	loose/dry		36.90
	loose/wet		46.69
Large Limbs/Stumps	loose		1080.00
Garden Debris	loose		182.81
Pine Needles	loose		74.42
OTHER ORGANICS			
Food Waste	loose/mixed produce		1443.00
Textiles	loose/mixed clothing		225.00
	compacted/mixed clothing		540.00

APPENDIX B: BLANK WORKSHEETS

Appendix B contains copies of the blank worksheets. The worksheets are displayed before the tables in Appendix C so the user can see the location of each table within each sheet.

DISPATCH YARD COSTS

	A	B	C	D	E
1	TABLE 1: BASE LINE DISPATCH YARD COST			TABLE 2: MODEL SCENARIO DISPATCH YARD COST	
2	CAPITAL COSTS			CAPITAL COSTS	
3					
4	#DIV/0!	1) Annual Cost: Land Acquisition		#DIV/0!	1) Annual Cost: Land Acquisition
5		total cost: land acquisition			total cost: land acquisition
6		interest rate (if not financed, enter "0")			interest rate (if not financed, enter "0")
7		loan term (if not financed, enter facility life in years)			loan term (if not financed, enter facility life in years)
8	#DIV/0!	2) Annual Cost: Site Preparation		#DIV/0!	2) Annual Cost: Site Preparation
9		total cost: site preparation			total cost: site preparation
10		interest rate (if not financed, enter "0")			interest rate (if not financed, enter "0")
11		loan term (if not financed, enter facility life in years)			loan term (if not financed, enter facility life in years)
12	#DIV/0!	3) Annual Cost: Structures		#DIV/0!	3) Annual Cost: Structures
13		total cost: shop			total cost: shop
14		total cost: office			total cost: office
15		total cost: other structures			total cost: other structures
16		interest rate (if not financed, enter "0")			interest rate (if not financed, enter "0")
17		loan term (if not financed, enter facility life in years)			loan term (if not financed, enter facility life in years)
18	#DIV/0!	4) Annual Cost: Professional Services		#DIV/0!	4) Annual Cost: Professional Services
19		total cost: professional services			total cost: professional services
20		facility life in years			facility life in years
21		5) Annual Cost: Other Dispatch Yard Capital Expenses			5) Annual Cost: Other Dispatch Yard Capital Expenses
22	#DIV/0!	SUBTOTAL: ANNUAL CAPITAL COST		#DIV/0!	SUBTOTAL: ANNUAL CAPITAL COST
23					
24					
25					
26	OPERATING COSTS			OPERATING COSTS	
27		6) Annual Cost: Utilities			6) Annual Cost: Utilities
28	$ -	7) Annual Cost: Structures Maintenance		$ -	7) Annual Cost: Structures Maintenance
29		8) Annual Cost: Facility Maintenance			8) Annual Cost: Facility Maintenance
30		9) Annual Cost: Taxes			9) Annual Cost: Taxes
31		10) Annual Cost: Supplies			10) Annual Cost: Supplies
32		11) Annual Cost: Insurance			11) Annual Cost: Insurance
33		12) Annual Cost: Depreciation			12) Annual Cost: Depreciation
34		13) Annual Cost: Other Yard Operating Expenses			13) Annual Cost: Other Dispatch Yard Operating Expenses
35	$ -	SUBTOTAL: ANNUAL OPERATING COST		$ -	SUBTOTAL: ANNUAL OPERATING COST
36					
37	#DIV/0!	TOTAL ANNUAL COST FOR DISPATCH YARD		#DIV/0!	TOTAL ANNUAL COST FOR DISPATCH YARD

MATERIAL TYPES

	A	B	C	D	E
1	TABLE 3: BASELINE MATERIALS COLLECTED				
2	If materials are added, the table must be sorted				
3	alphabetically using the "Codes" field in Column B as the key.				Use codes from Column B when listing materials.
4	MATERIAL NAME	CODES	DENSITY	COLLECTING?	MATERIALS IN COMPARTMENTS
5	Aluminum Cans	AL			List Materials in Compartment 1:
6	Bi-Metal Cntrs.	BiMtl			
7	Colored Glass Cntrs	ColGl			
8	CRV Glass	CRVGl			
9	Ferrous & Tin Cans	Fe&Tin			
10	Film Plastics	FilmPl			List Materials in Compartment 2:
11	Clear Glass Cntrs	Flint			
12	HDPE Cntrs.	HDPE			
13	Hi-Grade Ledger	Ldgr			
14	Mixed Paper	MP			
15	Cardboard & Bags	OCC			List Materials in Compartment 3:
16	Newspaper	ONP			
17	Other Plastics	OthPl			
18	Other Paper	OthPpr			
19	PET Cntrs.	PET			
20	Textiles & Leather	Txtls			List Materials in Compartment 4:
21	Yard Waste	YdWst			
22					
23					
24					
25					
26					
27	TABLE 4: MODEL SCENARIO MATERIALS COLLECTED				
28	If materials are added, the table must be sorted				
29	alphabetically using the "Codes" field in Column B as the key.				Use codes from Column B when listing materials.
30	MATERIAL NAME	CODES	DENSITY	COLLECTING?	MATERIALS IN COMPARTMENTS
31	Aluminum Cans	AL			List Materials in Compartment 1:
32	Bi-Metal Cntrs.	BiMtl			
33	Colored Glass Cntrs	ColGl			
34	CRV Glass	CRVGl			
35	Ferrous & Tin Cans	Fe&Tin			
36	Film Plastics	FilmPl			List Materials in Compartment 2:
37	Clear Glass Cntrs	Flint			
38	HDPE Cntrs.	HDPE			
39	Hi-Grade Ledger	Ldgr			
40	Mixed Paper	MP			
41	Cardboard & Bags	OCC			List Materials in Compartment 3:
42	Newspaper	ONP			
43	Other Plastics	OthPl			
44	Other Paper	OthPpr			
45	PET Cntrs.	PET			
46	Textiles & Leather	Txtls			List Materials in Compartment 4:
47	Yard Waste	YdWst			
48					
49					
50					

MATERIAL QUANTITIES

TABLE 5: JURISDICTION ATTRIBUTES

BASELINE SCENARIO

	BASE YEAR
	POPULATION
-	# HOUSEHOLDS
	single-family
	multi-family
#DIV/0!	AVG. PERSONS/HH
	single-family
	multi-family
	EMPLOYMENT
	TAXABLE TRANSACTIONS
	CONSUMER PRICE INDEX

BASELINE WASTE GENERATION STATISTICS

3.74	lbs/person/day
0.00	lbs/sf/hh/day
0.00	lbs/mf/hh/day

MODEL SCENARIO

	MODEL YEAR
0	(difference between base and model years)

MODEL SCENARIO: ADJUSTMENT INFORMATION

	% decrease in generation due to waste prevention
3.74	adjusted per capita waste generation in base year
-	POPULATION
	annual % change in population
-	# HOUSEHOLDS
-	single-family
-	multi-family
#DIV/0!	AVG. PERSONS/HH
3	single-family
2	multi-family
-	EMPLOYMENT
	annual % change in employment
#DIV/0!	TAXABLE TRANSACTIONS (adjusted for CPI)
	annual % change in taxable transactions
	CONSUMER PRICE INDEX
#DIV/0!	MULTIPLIER FACTOR

MODEL SCENARIO WASTE GENERATION STATISTICS

#DIV/0!	lbs/person/day
#DIV/0!	lbs/sf/hh/day
#DIV/0!	lbs/mf/hh/day

TABLE 5A: CA CONSUMER PRICE INDEX

YEAR	PRICE INDEX
1989	128.0
1990	135.0
1991	140.6
1992	145.6
1993	149.4
1994	153.3 (estimate)
1995	158.2 (estimate)
1996	164.8 (estimate)

TABLE 6: BASELINE QUANTITY OF RECYCLABLES

1. Do you want the Participation Rate to be the same for all materials? If no, enter "N", then input the rate for each material under Column I. If yes and enter the rate (as a percent) in cell D5

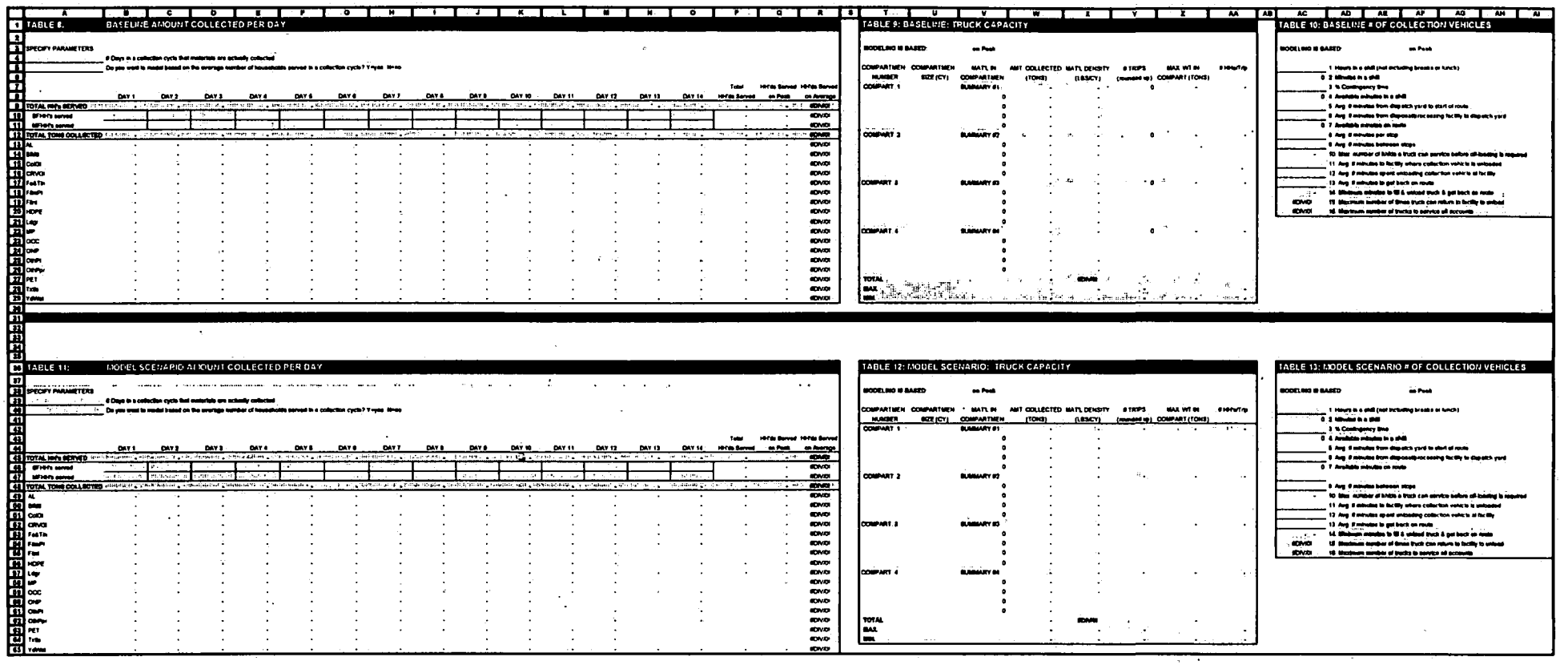
MATERIAL TYPE	AVG COMP waste gen	PER CAP GEN lbs/day	AVG REG GEN tons/day	CAPTURE RATE	PART RATE	# SET OUTS tmrss/month	MATERIAL AVAILABLE FOR RECYCLING LBS/YR sf/hh	LBS/YR mf/hh	ACTUAL LBS/SET-OUT sf/hh	LBS/SET-OUT mf/hh	TOTAL TONS COLL'D tons/set out
TOTAL	100%	3.74	-	#DIV/0!	0%	2	-	-	-	-	-
TOTAL PAPER	32.08%	1.20	-	#DIV/0!	0%	2	-	-	-	-	-
Cardboard & Bags	5.43%	0.20	-	0%		2	-	-	-	-	-
Mixed Paper	9.16%	0.34	-	0%		2	-	-	-	-	-
Newspaper	10.08%	0.38	-	80%		2	-	-	-	-	-
Hi-Grade Ledger	0.80%	0.03	-	0%		2	-	-	-	-	-
Other Paper	6.50%	0.24	-	0%		2	-	-	-	-	-
TOTAL PLASTICS	6.28%	0.23	-	#DIV/0!	0%	2	-	-	-	-	-
HDPE Cntrs	0.80%	0.03	-	66%		2	-	-	-	-	-
PET Cntrs.	0.32%	0.01	-	50%		2	-	-	-	-	-
Film Plastics	2.08%	0.08	-	0%		2	-	-	-	-	-
Other Plastics	3.08%	0.12	-	0%		2	-	-	-	-	-
TOTAL GLASS	6.09%	0.23	-	#DIV/0!	0%	2	-	-	-	-	-
Refill Glass Cntrs.	0.15%	0.01	-	0%		2	-	-	-	-	-
CRV Glass	2.32%	0.09	-	75%		2	-	-	-	-	-
Other Recyclable Gl.	2.77%	0.10	-	80%		2	-	-	-	-	-
Percent Clear/Flint											
Percent Colored											
Other Non-recy. Gl.	0.84%	0.03	-	0%		2	-	-	-	-	-
TOTAL METALS	4.53%	0.17	-	#DIV/0!	0%	2	-	-	-	-	-
Aluminum Cans	0.89%	0.03	-	50%		2	-	-	-	-	-
Bi-Metal Cntrs.	0.13%	0.00	-	80%		2	-	-	-	-	-
Ferrous & Tin Cans	2.60%	0.10	-	80%		2	-	-	-	-	-
Non-Ferrous & Al. Scrs	0.35%	0.01	-	0%		2	-	-	-	-	-
White Goods	0.30%	0.01	-	0%		2	-	-	-	-	-
Other Metals	0.26%	0.01	-	0%		2	-	-	-	-	-
TOTAL YARD WASTE	21.28%	0.80	-	0%		2	-	-	-	-	-
TOTAL OTHER ORGANI	19.75%	0.74	-	0%		2	-	-	-	-	-
Food Waste	8.64%	0.32	-	0%		2	-	-	-	-	-
Tires & Rubber	0.64%	0.02	-	0%		2	-	-	-	-	-
Wood Wastes	2.89%	0.11	-	0%		2	-	-	-	-	-
Crop Residues	0.09%	0.00	-	0%		2	-	-	-	-	-
Manure	0.36%	0.01	-	0%		2	-	-	-	-	-
Textiles & Leather	2.27%	0.08	-	0%		2	-	-	-	-	-
Misc. Organics	2.50%	0.09	-	0%		2	-	-	-	-	-
Disposable Diapers	2.26%	0.08	-	0%		2	-	-	-	-	-
TOTAL OTHER WASTE	10.01%	0.37	-	0%		2	-	-	-	-	-

TABLE 7: MODEL SCENARIO QUANTITY OF RECYCLABLES

1. Do you want the Participation Rate to be the same for all materials? If no, enter "N" in cell D4, then input the rate for each material under Column I. If yes enter the rate (as a percent) in cell D54.

MATERIAL TYPE	AVG COMP waste gen	PER CAP GEN lbs/day	VG REG GE tons/day	CAPTURE RATE	PART. RATE	# SET OUTS tmrss/month	MATERIALS AVAILABLE FOR RECYCLING AMT. RECY lbs/sf/hh/yr	AMT. RECY lbs/mf/hh/yr	ACTUAL LBS/SET-OUT sf/hh	LBS/SET-OUT mf/hh	TOTAL COLL. tons/set out
TOTAL	100%	#DIV/0!	#DIV/0!	#DIV/0!	0%	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
TOTAL PAPER	32.08%	#DIV/0!	#DIV/0!	#DIV/0!	0%	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Cardboard & Bags	5.43%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Mixed Paper	9.16%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Newspaper	10.08%	#DIV/0!	#DIV/0!	80%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Hi-Grade Ledger	0.90%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Other Paper	6.50%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
TOTAL PLASTICS	6.28%	#DIV/0!	#DIV/0!	#DIV/0!	0%	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
HDPE Cntrs.	0.80%	#DIV/0!	#DIV/0!	66%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
PET Cntrs.	0.32%	#DIV/0!	#DIV/0!	50%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Film Plastics	2.08%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Other Plastics	3.08%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
TOTAL GLASS	6.09%	#DIV/0!	#DIV/0!	#DIV/0!	0%	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Refill Glass Cntrs	0.15%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
CRV Glass	2.32%	#DIV/0!	#DIV/0!	75%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Other Recyclable Gl.	2.77%	#DIV/0!	#DIV/0!	80%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Percent Clear/Flint											
Percent Colored											
Other Non-recy. Gl.	0.84%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
TOTAL METALS	4.53%	#DIV/0!	#DIV/0!	#DIV/0!	0%	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Aluminum Cans	0.89%	#DIV/0!	#DIV/0!	50%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Bi-Metal Cntrs.	0.13%	#DIV/0!	#DIV/0!	80%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Ferrous & Tin Cans	2.60%	#DIV/0!	#DIV/0!	80%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Non-Ferrous & Al. Scrs	0.35%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
White Goods	0.30%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Other Metals	0.26%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
TOTAL YARD WASTE	21.28%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
TOTAL OTHER ORGANI	19.75%	#DIV/0!	#DIV/0!	#DIV/0!	0%	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Food Waste	8.64%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Tires & Rubber	0.64%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Wood Wastes	2.89%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Crop Residues	0.09%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Manure	0.36%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Textiles & Leather	2.27%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Misc. Organics	2.50%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Disposable Diapers	2.26%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
TOTAL OTHER WASTE	10.01%	#DIV/0!	#DIV/0!	0%		2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

COLLECTION CAPACITY



COLLECTION ROUTE COSTS

TABLE 14: BASELINE LABOR & OVERHEAD COSTS

Job Title	# Employees with Job Tit	Average Salary	% Additional for Benefits	Salary with Benefits	Total Cost for Job Title	Total Cost
LABOR COST						$ -
Drivers				$ -	$ -	
Supervisors				$ -	$ -	
Clerical/Support				$ -	$ -	
OVERHEAD COST						$ -
Supervisors				$ -	$ -	
Management				$ -	$ -	
Clerical/Support				$ -	$ -	

TABLE 15: BASELINE COLLECTION ROUTE COST

CAPITAL COSTS	
#DIV/0!	1) Annual Cost: Collection Vehicle
#DIV/0!	number of vehicles
	cost per vehicle
	interest rate (if not financed, enter "0")
	loan term (in years; if not financed, enter expected life)
#DIV/0!	2) Annual Cost: Route Supervisor Vehicles
	number of vehicles
	cost per vehicle
	interest rate (if not financed, enter "0")
	loan term (in years; if not financed, enter expected life)
#DIV/0!	3) Annual Cost: Curbside Collection Containers
	number of containers per household
-	number of households
	unit cost
	amortization term (in years)
	4) Other Annual Capital Costs
	5) Contingency (enter as a percent)
#DIV/0!	SUBTOTAL: ANNUAL CAPITAL COST
OPERATING COSTS	
$ -	6) Labor
$ -	7) Overhead
#DIV/0!	8) Replacement Curbside Collection Containers
	% of containers that will require replacement annually
	cost per container
	amortization term
$ -	9) O&M: Collection Vehicles
	cost per mile
	miles per day
	days per year operating
	# vehicles operating per day
$ -	10) O&M: Route Supervisor Vehicles
	cost per mile
	miles per day
	days per year operating
	# vehicles operating per day
	11) Insurance
	12) Supplies (coveralls/gloves/back support belts)
$ -	13) Depreciation
	a) Collection Vehicles
	b) Supervisor Vehicles
$ -	14) Other Operating Costs (list below)
	a)
	b)
	c)
#DIV/0!	SUBTOTAL: ANNUAL OPERATING COST
#DIV/0!	TOTAL ANNUAL COST FOR COLLECTION ROUTE

TABLE 16: MODEL LABOR & OVERHEAD COSTS

Job Title	# Employees with Job Tit	Average Salary	% Additional for Benefits	Salary with Benefits	Total Cost for Job Title	Total Cost
LABOR COST						$ -
Drivers				$ -	$ -	
Supervisors				$ -	$ -	
Clerical/Support				$ -	$ -	
OVERHEAD COST						$ -
Supervisors				$ -	$ -	
Management				$ -	$ -	
Clerical/Support				$ -	$ -	

TABLE 17: MODEL SCENARIO COLLECTION ROUTE COST

CAPITAL COSTS	
#DIV/0!	1) Annual Cost: Collection Vehicle
#DIV/0!	number of vehicles
	cost per vehicle
	interest rate (if not financed, enter "0")
	loan term (in years; if not financed, enter expected life)
#DIV/0!	2) Annual Cost: Route Supervisor Vehicles
	number of vehicles
	cost per vehicle
	interest rate (if not financed, enter "0")
	loan term (in years; if not financed, enter expected life)
#DIV/0!	3) Annual Cost: Curbside Collection Containers
	number of containers per household
-	number of households
	unit cost
	amortization term (in years)
	4) Other Annual Capital Costs
	5) Contingency (enter as a percent)
#DIV/0!	SUBTOTAL: ANNUAL CAPITAL COST
OPERATING COSTS	
$ -	6) Labor
$ -	7) Overhead
#DIV/0!	8) Replacement Curbside Collection Containers
	% of containers that will require replacement annually
	cost per container
	amortization term
$ -	9) O&M: Collection Vehicles
	cost per mile
	miles per day
	days per year operating
	# vehicles operating per day
$ -	10) O&M: Route Supervisor Vehicles
	cost per mile
	miles per day
	days per year operating
	# vehicles operating per day
	11) Insurance
	12) Supplies (coveralls/gloves/back support belts)
$ -	13) Depreciation
	a) Collection Vehicles
	b) Supervisor Vehicles
$ -	14) Other Operating Costs (list below)
	a)
	b)
	c)
#DIV/0!	SUBTOTAL: ANNUAL OPERATING COST
#DIV/0!	TOTAL ANNUAL COST FOR COLLECTION ROUTE

SUMMARY COSTS

	A	B	C	D
1	**TABLE 18: COST SUMMARY**			
2				
3		**BASE YEAR**		**MODEL YEAR**
4	#DIV/0!	**TOTAL ANNUAL COST FOR DISPATCH YARD**	#DIV/0!	$ -
5	#DIV/0!	SUBTOTAL: ANNUAL CAPITAL COST	#DIV/0!	SUBTOTAL: ANNUAL CAPITAL COST
6	$ -	SUBTOTAL: ANNUAL OPERATING COST	$ -	SUBTOTAL: ANNUAL OPERATING COST
7				
8	#DIV/0!	**TOTAL ANNUAL COST FOR COLLECTION ROUTE**	#DIV/0!	$ -
9	#DIV/0!	SUBTOTAL: ANNUAL CAPITAL COST	#DIV/0!	SUBTOTAL: ANNUAL CAPITAL COST
10	#DIV/0!	SUBTOTAL: ANNUAL OPERATING COST	#DIV/0!	SUBTOTAL: ANNUAL OPERATING COST
11				
12	#DIV/0!	**TOTAL ANNUAL COST YARD + ROUTE**	#DIV/0!	**TOTAL ANNUAL COST YARD + ROUTE**
13				
14				
15				
16				
17				
18	**TABLE 19: DIVERSION ATTRIBUTED TO PROGRAM**			
19				
20		**BASE YEAR**		**MODEL YEAR**
21	-	Base Year Diversion (in tons)	-	Model Year Diversion (in tons)
22	-	Base Year Generation (in tons)	#DIV/0!	Model Year Generation (in tons)
23				
24	#DIV/0!	**Base Year Diversion Rate**	#DIV/0!	**Model Year Diversion Rate**
25				
26				
27				
28	TABLE 20: BASELINE SCENARIO COST INDICATORS		TABLE 21: MODEL SCENARIO COST INDICATORS	
29				
30	#DIV/0!	Total Annual Cost Per Household	#DIV/0!	Total Annual Cost Per Household
31	#DIV/0!	Total Annual Cost Per Person	#DIV/0!	Total Annual Cost Per Person
32				
33	#DIV/0!	Total Truck Fleet Cost Per Hour	#DIV/0!	Total Truck Fleet Cost Per Hour
34	#DIV/0!	Labor Cost Per Hour	#DIV/0!	Labor Cost Per Hour
35				
36	#DIV/0!	Truck Cost Per Ton Diverted	#DIV/0!	Truck Cost Per Ton Diverted
37	#DIV/0!	Labor Cost Per Ton Diverted	#DIV/0!	Labor Cost Per Ton Diverted
38				
39	#DIV/0!	Total Annual Cost Per Ton Diverted	#DIV/0!	Total Annual Cost Per Ton Diverted
40				

APPENDIX C: BLANK TABLES

In the following pages, one of each baseline table is presented. Model tables are not presented because baseline and model tables appear identical throughout the CCCM, only the internal formulae differ.

DISPATCH YARD COSTS

	A	B
1	TABLE 1: BASE LINE DISPATCH YARD COST	
2	CAPITAL COSTS	
3		
4	#DIV/0!	1) Annual Cost: Land Acquisition
5		total cost: land acquisition
6		*interest rate (if not financed, enter "0")*
7		loan term (if not financed, enter facility life in years)
8	#DIV/0!	2) Annual Cost: Site Preparation
9		total cost: site preparation
10		interest rate (if not financed, enter "0")
11		loan term (if not financed, enter facility life in years)
12	#DIV/0!	3) Annual Cost: Structures
13		total cost: shop
14		total cost: office
15		total cost: other structures
16		interest rate (if not financed, enter "0")
17		loan term (if not financed, enter facility life in years)
18	#DIV/0!	4) Annual Cost: Professional Services
19		total cost: professional services
20		facility life in years
21		5) Annual Cost: Other Dispatch Yard Capital Expenses
22	#DIV/0!	SUBTOTAL: ANNUAL CAPITAL COST
23		
24		
25		
26	OPERATING COSTS	
27		6) Annual Cost: Utilities
28	$ -	7) Annual Cost: Structures Maintenance
29		8) Annual Cost: Facility Maintenance
30		9) Annual Cost: Taxes
31		10) Annual Cost: Supplies
32		11) Annual Cost: Insurance
33		12) Annual Cost: Depreciation
34		13) Annual Cost: Other Yard Operating Expenses
35	$ -	SUBTOTAL: ANNUAL OPERATING COST
36		
37	#DIV/0!	TOTAL ANNUAL COST FOR DISPATCH YARD

MATERIAL TYPES

	A	B	C	D	E
1	TABLE 3: BASELINE MATERIALS COLLECTED				
2	If materials are added, the table must be sorted				
3	alphabetically using the "Codes" field in Column B as the key.				Use codes from Column B when listing materials.
4	MATERIAL NAME	CODES	DENSITY	COLLECTING?	MATERIALS IN COMPARTMENTS
5	Aluminum Cans	AL			List Materials in Compartment 1:
6	Bi-Metal Cntrs.	BiMtl			
7	Colored Glass Cntrs	ColGl			
8	CRV Glass	CRVGl			
9	Ferrous & Tin Cans	Fe&Tin			
10	Film Plastics	FilmPl			List Materials in Compartment 2:
11	Clear Glass Cntrs	Flint			
12	HDPE Cntrs.	HDPE			
13	Hi-Grade Ledger	Ldgr			
14	Mixed Paper	MP			
15	Cardboard & Bags	OCC			List Materials in Compartment 3:
16	Newspaper	ONP			
17	Other Plastics	OthPl			
18	Other Paper	OthPpr			
19	PET Cntrs.	PET			
20	Textiles & Leather	Txtls			List Materials in Compartment 4:
21	Yard Waste	YdWst			
22					
23					
24					

MATERIAL QUANTITIES

	A	B
1	**TABLE 5: JURISDICTION ATTRIBUTES**	
2		
3	**BASELINE SCENARIO**	
4		BASE YEAR
5		POPULATION
6	-	# HOUSEHOLDS
7		single-family
8		multi-family
9	#DIV/0!	AVG. PERSONS/HH
10		single-family
11		multi-family
12		EMPLOYMENT
13		TAXABLE TRANSACTIONS
14		CONSUMER PRICE INDEX
15	BASELINE WASTE GENERATION STATISTICS	
16	3.74	lbs/person/day
17	0.00	lbs/sfhh/day
18	0.00	lbs/mfhh/day
19		
20	**MODEL SCENARIO**	
21		MODEL YEAR
22	0	(difference between base and model years)
23	MODEL SCENARIO: ADJUSTMENT INFORMATION	
24		% decrease in generation due to waste prevention
25	3.74	adjusted per capita waste generation in base year
26	-	POPULATION
27		annual % change in population
28	-	# HOUSEHOLDS
29	-	single-family
30	-	multi-family
31	#DIV/0!	AVG. PERSONS/HH
32	3	single-family
33	2	multi-family
34	-	EMPLOYMENT
35		annual % change in employment
36	#DIV/0!	TAXABLE TRANSACTIONS (adjusted for CPI)
37		annual % change in taxable transactions
38		CONSUMER PRICE INDEX
39	#DIV/0!	MULTIPLIER FACTOR
40	MODEL SCENARIO WASTE GENERATION STATISTICS	
41	#DIV/0!	lbs/person/day
42	#DIV/0!	lbs/sfhh/day
43	#DIV/0!	lbs/mfhh/day
44		

45	**TABLE 5A: CA CONSUMER PRICE INDEX**	
46	YEAR	PRICE INDEX
47	1989	128.0
48	1990	135.0
49	1991	140.6
50	1992	145.6
51	1993	149.4
52	1994	153.3 (estimate)
53	1995	159.2 (estimate)
54	1996	164.8 (estimate)

MATERIAL QUANTITIES

TABLE 6: BASELINE QUANTITY OF RECYCLABLES

1. Do you want the Participation Rate to be the same for all materials? If no, enter "N", then input the rate for each material under Column I. If yes, and enter the rate (as a percent) in cell D5.

MATERIAL TYPE	AVG COMP waste gen	PER CAP GEN lbs/day	AVG REG GEN tons/day	CAPTURE RATE	PART. RATE	# SET OUTS times/month	MATERIAL AVAILABLE FOR RECYCLING LBS/YR sfhh	LBS/YR mfhh	LBS/SET-OUT sfhh	LBS/SET-OUT mfhh	ACTUAL TOTAL TONS COLL'D tons/set out
TOTAL	100%	3.74	-	#DIV/0!	0%	2	-	-	-	-	-
TOTAL PAPER	32.06%	1.20	-	#DIV/0!	0%	2	-	-	-	-	-
Cardboard & Bags	5.43%	0.20	-	0%	0%	2	-	-	-	-	-
Mixed Paper	9.16%	0.34	-	0%	0%	2	-	-	-	-	-
Newspaper	10.08%	0.38	-	90%	0%	2	-	-	-	-	-
Hi-Grade Ledger	0.90%	0.03	-	0%	0%	2	-	-	-	-	-
Other Paper	6.50%	0.24	-	0%	0%	2	-	-	-	-	-
TOTAL PLASTICS	6.28%	0.23	-	#DIV/0!	0%	2	-	-	-	-	-
HDPE Cntrs.	0.80%	0.03	-	68%	0%	2	-	-	-	-	-
PET Cntrs.	0.32%	0.01	-	50%	0%	2	-	-	-	-	-
Film Plastics	2.08%	0.08	-	0%	0%	2	-	-	-	-	-
Other Plastics	3.08%	0.12	-	0%	0%	2	-	-	-	-	-
TOTAL GLASS	6.09%	0.23	-	#DIV/0!	0%	2	-	-	-	-	-
Refill Glass Cntrs.	0.15%	0.01	-	0%	0%	2	-	-	-	-	-
CRV Glass	2.32%	0.09	-	75%	0%	2	-	-	-	-	-
Other Recyclable Gl.	2.77%	0.10	-	80%	0%	2	-	-	-	-	-
Percent Clear/Flint											
Percent Colored											
Other Non-recy. Gl.	0.84%	0.03	-	0%	0%	2	-	-	-	-	-
TOTAL METALS	4.53%	0.17	-	#DIV/0!	0%	2	-	-	-	-	-
Aluminum Cans	0.89%	0.03	-	50%	0%	2	-	-	-	-	-
Bi-Metal Cntrs.	0.13%	0.00	-	80%	0%	2	-	-	-	-	-
Ferrous & Tin Cans	2.60%	0.10	-	80%	0%	2	-	-	-	-	-
Non-Ferrous & Al. Scrap	0.35%	0.01	-	0%	0%	2	-	-	-	-	-
White Goods	0.30%	0.01	-	0%	0%	2	-	-	-	-	-
Other Metals	0.26%	0.01	-	0%	0%	2	-	-	-	-	-
TOTAL YARD WASTE	21.28%	0.80	-	0%	0%	2	-	-	-	-	-
TOTAL OTHER ORGANI	19.75%	0.74	-	0%	0%	2	-	-	-	-	-
Food Waste	8.64%	0.32	-	0%	0%	2	-	-	-	-	-
Tires & Rubber	0.64%	0.02	-	0%	0%	2	-	-	-	-	-
Wood Wastes	2.99%	0.11	-	0%	0%	2	-	-	-	-	-
Crop Residues	0.09%	0.00	-	0%	0%	2	-	-	-	-	-
Manure	0.36%	0.01	-	0%	0%	2	-	-	-	-	-
Textiles & Leather	2.27%	0.08	-	0%	0%	2	-	-	-	-	-
Misc. Organics	2.50%	0.09	-	0%	0%	2	-	-	-	-	-
Disposable Diapers	2.26%	0.08	-	0%	0%	2	-	-	-	-	-
TOTAL OTHER WASTE	10.01%	0.37	-	0%	0%	2	-	-	-	-	-

COLLECTION CAPACITY

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	TABLE 8:	BASELINE AMOUNT COLLECTED PER DAY																
2																		
3	SPECIFY PARAMETERS																	
4		# Days in a collection cycle that materials are actually collected																
5		Do you want to model based on the average number of households served in a collection cycle? Y=yes; N=no																
6																		
7																Total	HH'ds Served	HH'ds Served
8		DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7	DAY 8	DAY 9	DAY 10	DAY 11	DAY 12	DAY 13	DAY 14	HH'ds Served	on Peak	on Average
9	TOTAL HH's SERVED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
10	SFHH's served															-	-	#DIV/0!
11	MFHH's served															-	-	#DIV/0!
12	TOTAL TONS COLLECTED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
13	AL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
14	BiMtl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
15	CoIGl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
16	CRVGl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
17	Fe&Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
18	FilmPl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
19	Flint	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
20	HDPE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
21	Ldgr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
22	MP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
23	OCC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
24	ONP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
25	OthPl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
26	OthPpr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
27	PET	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
28	Txtls	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!
29	YdWst	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#DIV/0!

COLLECTION CAPACITY

	T	U	V	W	X	Y	Z	AA
1	**TABLE 9: BASELINE: TRUCK CAPACITY**							
2								
3	**MODELING IS BASED:**		**on Peak**					
4								
5	COMPARTMENT	COMPARTMENT	MAT'L IN	AMT. COLLECTED	MAT'L DENSITY	# TRIPS	MAX. WT IN	# HHs/Trip
6	NUMBER	SIZE (CY)	COMPARTMENT	(TONS)	(LBS/CY)	(rounded up)	OMPART.(TONS)	
7	COMPART. 1		SUMMARY #1	-	-	0	-	-
8			0	-	-			
9			0	-	-			
10			0	-	-			
11			0	-	-			
12	COMPART. 2		SUMMARY #2	-	-	0	-	-
13			0	-	-			
14			0	-	-			
15			0	-	-			
16			0	-	-			
17	COMPART. 3		SUMMARY #3	-	-	0	-	-
18			0	-	-			
19			0	-	-			
20			0	-	-			
21			0	-	-			
22	COMPART. 4		SUMMARY #4	-	-	0	-	-
23			0	-	-			
24			0	-	-			
25			0	-	-			
26			0	-	-			
27	TOTAL			-	#DIV/0!	-	-	
28	MAX.			-	-	-		-
29	MIN.			-	-	-	-	-

COLLECTION CAPACITY

	AC	AD	AE	AF	AG	AH	AI
1	TABLE 10: BASELINE # OF COLLECTION VEHICLES						
2							
3	MODELING IS BASED:			on Peak			
4							
5		1. Hours in a shift (not including breaks or lunch)					
6	0	2. Minutes in a shift					
7		3. % Contingency time					
8	0	4. Available minutes in a shift					
9		5. Avg. # minutes from dispatch yard to start of route					
10		6. Avg. # minutes from disposal/processing facility to dispatch yard					
11	0	7. Available minutes on route					
12		8. Avg. # minutes per stop					
13		9. Avg. # minutes between stops					
14		10. Max. number of hhlds a truck can service before off-loading is required					
15		11. Avg. # minutes to facility where collection vehicle is unloaded					
16		12. Avg. # minutes spent unloading collection vehicle at facility					
17		13. Avg. # minutes to get back on route					
18	-	14. Minimum minutes to fill & unload truck & get back on route					
19	#DIV/0!	15. Maximum number of times truck can return to facility to unload					
20	#DIV/0!	16. Maximum number of trucks to service all accounts					

COLLECTION ROUTE COSTS

	A	B	C	D	E	F	G
1	TABLE 14: BASELINE LABOR & OVERHEAD COSTS						
2							
3	Job Title	# Employees	Average	% Additional	Salary with	Total Cost	Total Cost
4		with Job Title	Salary	for Benefits	Benefits	for Job Title	
5	LABOR COST						$ -
6	Drivers				$ -	$ -	
7	Supervisors				$ -	$ -	
8	Clerical/Support				$ -	$ -	
9							
10	OVERHEAD COST						$ -
11	Supervisors				$ -	$ -	
12	Management				$ -	$ -	
13	Clerical/Support				$ -	$ -	

COLLECTION ROUTE COSTS

	I	J
1	**TABLE 15: BASELINE COLLECTION ROUTE COST**	
2		
3	**CAPITAL COSTS**	
4	#DIV/0!	1) Annual Cost: Collection Vehicle
5	#DIV/0!	number of vehicles
6		cost per vehicle
7		interest rate (if not financed, enter "0")
8		loan term (in years; if not financed, enter expected life)
9	#DIV/0!	2) Annual Cost: Route Supervisor Vehicles
10		number of vehicles
11		cost per vehicle
12		interest rate (if not financed, enter "0")
13		loan term (in years; if not financed, enter expected life)
14	#DIV/0!	3) Annual Cost: Curbside Collection Containers
15		number of containers per household
16	-	number of households
17		unit cost
18		amortization term (in years)
19		4) Other Annual Capital Costs
20		5) Contingency (enter as a percent)
21	**#DIV/0!**	**SUBTOTAL: ANNUAL CAPITAL COST**
22		
23	**OPERATING COSTS**	
24	$ -	6) Labor
25	$ -	7) Overhead
26	#DIV/0!	8) Replacement Curbside Collection Containers
27		% of containers that will require replacement annually
28		cost per container
29		amortization term
30	$ -	9) O&M: Collection Vehicles
31		cost per mile
32		miles per day
33		days per year operating
34		# vehicles operating per day
35	$ -	10) O&M: Route Supervisor Vehicles
36		cost per mile
37		miles per day
38		days per year operating
39		# vehicles operating per day
40		11) Insurance
41		12) Supplies (coveralls/gloves/back support belts)
42	$ -	13) Depreciation
43		a) Collection Vehicles
44		b) Supervisor Vehicles
45	$ -	14) Other Operating Costs (list below)
46		a)
47		b)
48		c)
49	**#DIV/0!**	**SUBTOTAL: ANNUAL OPERATING COST**
50		
51	**#DIV/0!**	**TOTAL ANNUAL COST FOR COLLECTION ROUTE**

SUMMARY COSTS

	A	B	C	D
1	**TABLE 18: COST SUMMARY**			
2				
3		**BASE YEAR**		**MODEL YEAR**
4	#DIV/0!	**TOTAL ANNUAL COST FOR DISPATCH YARD**	#DIV/0!	$ -
5	#DIV/0!	SUBTOTAL: ANNUAL CAPITAL COST	#DIV/0!	SUBTOTAL: ANNUAL CAPITAL COST
6	$ -	SUBTOTAL: ANNUAL OPERATING COST	$ -	SUBTOTAL: ANNUAL OPERATING COST
7				
8	#DIV/0!	**TOTAL ANNUAL COST FOR COLLECTION ROUTE**	#DIV/0!	$ -
9	#DIV/0!	SUBTOTAL: ANNUAL CAPITAL COST	#DIV/0!	SUBTOTAL: ANNUAL CAPITAL COST
10	#DIV/0!	SUBTOTAL: ANNUAL OPERATING COST	#DIV/0!	SUBTOTAL: ANNUAL OPERATING COST
11				
12	#DIV/0!	**TOTAL ANNUAL COST YARD + ROUTE**	#DIV/0!	**TOTAL ANNUAL COST YARD + ROUTE**
13				
14				
15				
16				
17				
18	**TABLE 19: DIVERSION ATTRIBUTED TO PROGRAM**			
19				
20		**BASE YEAR**		**MODEL YEAR**
21	-	Base Year Diversion (in tons)	-	Model Year Diversion (in tons)
22	-	Base Year Generation (in tons)	#DIV/0!	Model Year Generation (in tons)
23				
24	#DIV/0!	Base Year Diversion Rate	#DIV/0!	Model Year Diversion Rate
25				
26				
27				
28	TABLE 20: BASELINE SCENARIO COST INDICATORS		TABLE 21: MODEL SCENARIO COST INDICATORS	
29				
30	#DIV/0!	Total Annual Cost Per Household	#DIV/0!	Total Annual Cost Per Household
31	#DIV/0!	Total Annual Cost Per Person	#DIV/0!	Total Annual Cost Per Person
32				
33	#DIV/0!	Total Truck Fleet Cost Per Hour	#DIV/0!	Total Truck Fleet Cost Per Hour
34	#DIV/0!	Labor Cost Per Hour	#DIV/0!	Labor Cost Per Hour
35				
36	#DIV/0!	Truck Cost Per Ton Diverted	#DIV/0!	Truck Cost Per Ton Diverted
37	#DIV/0!	Labor Cost Per Ton Diverted	#DIV/0!	Labor Cost Per Ton Diverted
38				
39	#DIV/0!	Total Annual Cost Per Ton Diverted	#DIV/0!	Total Annual Cost Per Ton Diverted
40				