California Integrated Waste Management Board
Recycling and Waste Management Infrastructure Project

Overview and Vision

January 30, 2009

We Need Your help – Complete an On-Line Survey!
The Recycling and Waste Management Infrastructure Project aims to address stakeholders' top information needs and concerns. To make sure your voice is heard review this paper and

Introduction

This paper provides a brief overview of the Recycling and Waste Management Infrastructure Project (Infrastructure Project) and a preliminary vision for how the project may unfold.

The sections below cover:

- Project Goals and Guiding Principles
- Types of Information to be Gathered
- Approach to Gathering the Information
- Approach to Delivering the Information

The main purpose of this paper is to help stakeholders to provide feedback on the project. The next steps are to prepare a User Needs Assessment by March 31, 2009 and finalize the detailed project approach by summer 2009. The project is scheduled to culminate in the launch of a new Infrastructure Information Web Page within the Board's existing website in April 2010.

Goals and Guiding Principles

The main goals of the Infrastructure Project are to:

- Enhance the Board's existing information on solid waste management and recycling facilities to better satisfy stakeholder needs
- Launch a new web page within the Board's existing website that provides easy access to information on all identified California waste management and recycling facilities, with regionally aggregated summary statistics and maps showing facility locations
- Develop a model to help stakeholders project infrastructure capacity and gaps under a range of different assumptions and scenarios and
- Establish a practical system for regularly updating the information and web page.

The need to address several key challenges requires the project team to make compromises as it strives to achieve the above goals. These challenges include addressing: data gaps and

inadequacies; concerns over release of confidential information and the high cost of maintaining and updating data.

To ensure that the project provides maximum value while addressing these challenges, the project team will strive to satisfy the following six guiding principles:

- The project must focus on top priority needs and concerns as identified in a User Needs Assessment
- Concerns over the release of confidential company data must be clearly and unambiguously addressed (see the Confidentiality Policy for more information)
- The project must provide the most up-to-date, accurate information possible subject to satisfying other guiding principles
- The project must build on and be coordinated with other Board activities, and be feasible to update and maintain given anticipated Board resources
- Project results must include a clear explanation of data quality, such as when it was last updated, how key uncertainties may affect accuracy and appropriate data uses
- The Infrastructure Information Web Site must be easy to use based on standard practices, typically available software, and user computer experience

Types of Targeted Information

The information targeted by the Infrastructure Project is defined by the types of facilities, types of materials, type of data gathered and reported and the geographic boundaries used to aggregate and present results. A preliminary conceptual approach to each of these is discussed below.

Categories of Facilities Included

Figure 1 identifies the categories of facilities to be covered. In short, the project covers: all permanent physical facilities involved with waste management including transfer/processing (e.g., waste transfer stations), transformation (e.g., waste-to-energy facilities), and disposal (e.g., landfills); and all recycling facilities from transfer/processing (e.g., materials recovery facilities that bale HDPE bottles) through intermediate manufacture (e.g., plastics reclaimers producing pellets from HDPE bottles) through manufacturing facilities using recycled materials to make new products (e.g., plastic converters that make pipe from HDPE pellets). See Definition of Facility Categories for more details.

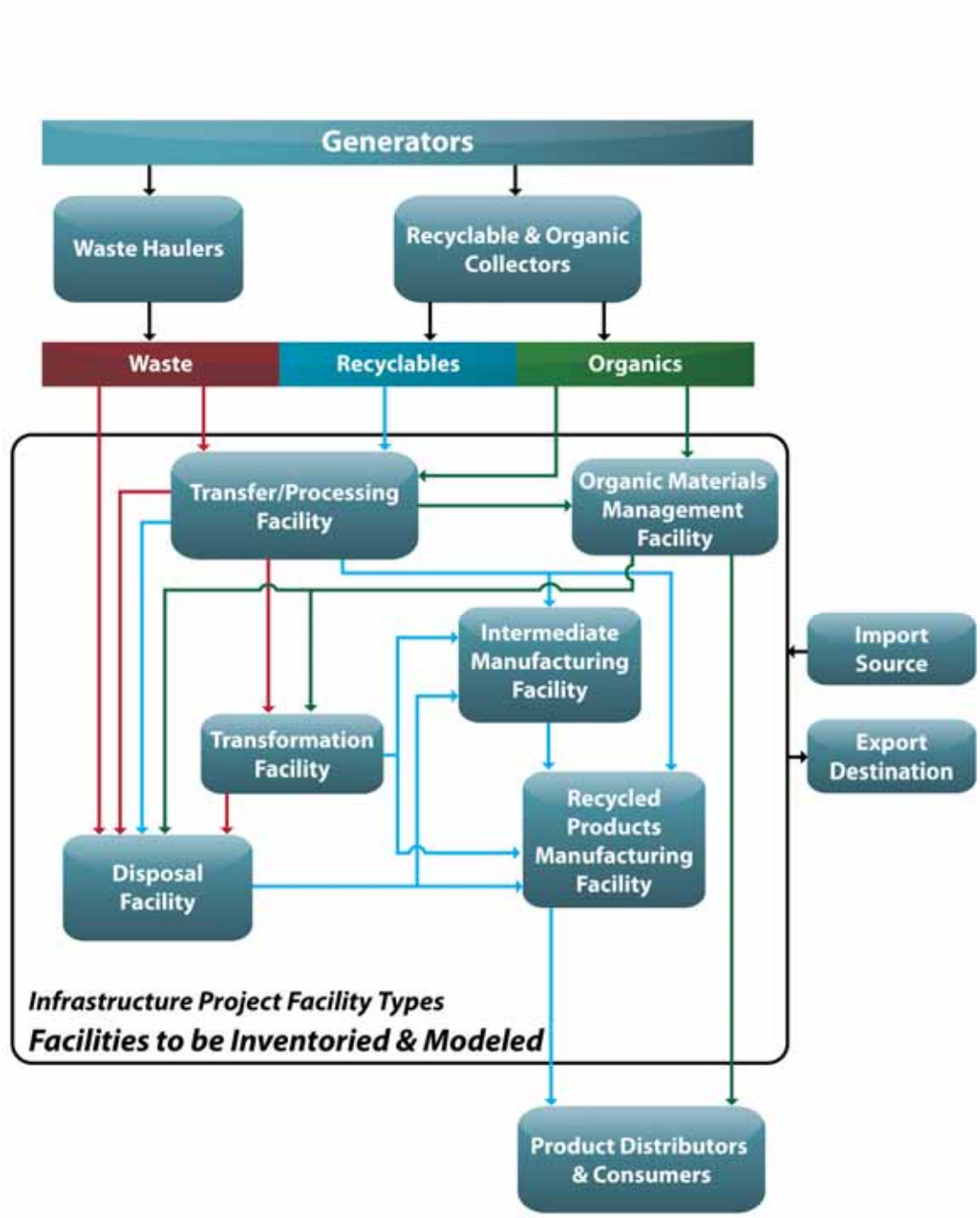

Figure 1. Waste Management and Recycling Flow Chart Identifying Categories of Facilities Covered in the Project

Categories of Waste and Recyclable Materials Covered

The project covers all types of municipal solid waste as defined in the Board's statewide waste characterization studies, with the exception of household hazardous waste (other than used oil and oil filters). Facilities will be able to list any of these materials as inputs and outputs to their operations. For the purposes of aggregating data and modeling infrastructure needs, however, the project will focus on the smaller group of selected categories and sub-categories listed in Table 1 below. Using a smaller number of material categories is intended to simplify modeling and these categories were preliminarily determined to be the most useful for describing flows and infrastructure needs. See Definition of Material Categories for additional information.

Table 1 – List of Material Categories and Sub-categories

Categories	Sub-categories
▪ Mixed Solid Waste	
▪ Mixed Recyclables	
▪ Organics	Urban/Suburban Green Waste, Agricultural Green Waste, Food Waste, Textiles, Carpet, Mixed/Other and Residuals
▪ Metals	Aluminum Cans, Steel Cans, Other Ferrous, Other Non-Ferrous, Mixed/Other and Residuals
▪ Glass	Containers, Mixed/Other and Residuals
▪ Plastic	PET, HDPE, Mixed/Other and Residuals
▪ Paper	White Ledger, Cardboard, Newsprint, Mixed/Other and Residuals
▪ Construction & Demolition Debris	Recyclable, Mixed/Other and Residuals
▪ Used Oil	Used Oil and Used Oil Filters
▪ Waste and Used Tires	Used Tires, Shreds/Chips, Ground/Crumb, Mixed/Other and Residuals

Type of Information Gathered and Reported

Preliminarily, the project will target the following types of information:

- Facility-specific information such as facility descriptions, contact information, types of inputs and outputs and total capacity
- Aggregated regional information such as total capacity by material type and type of facility, and the quantity of total inputs and outputs to different categories of facilities in a defined region
- Model results such as projected waste generation and infrastructure shortfalls by facility category, based on user-defined scenarios for waste disposal and diversion, or shifts in demographic and economic trends
- Other related information such as location of transportation and utility infrastructure, and links to Board program information

See Types of Targeted Infrastructure Information and Approach to Modeling Waste Generation and Infrastructure Needs for more detailed information.

Regional Breakdowns

Regional breakdowns are needed to meet user needs, simplify modeling and for reporting confidential data; however, the project team is still considering how to define regions. The issue is complicated because the Board and other state agencies currently use many different regional breakdowns, and no one approach works optimally for all purposes envisioned in this project. For example, the Board's regions defined for waste characterization studies are presented in Figure 2 below. Since waste composition data are available based on these regions, they will likely need to be used for projecting waste composition in the project's model. However, waste flows may be highly erratic within these regions, especially the "coastal" region which includes two disconnected regions north and south of the Bay Area. One alternative may be to avoid defining regions altogether by allowing users to define regions (comprised of multiple counties) to analyze, and to analyze infrastructure needs based on typical flow patterns regardless of predetermined regions. However, this approach may be too budget-intensive or infeasible due to data gaps. The team is seeking stakeholder feedback to assist in determining the best approach.

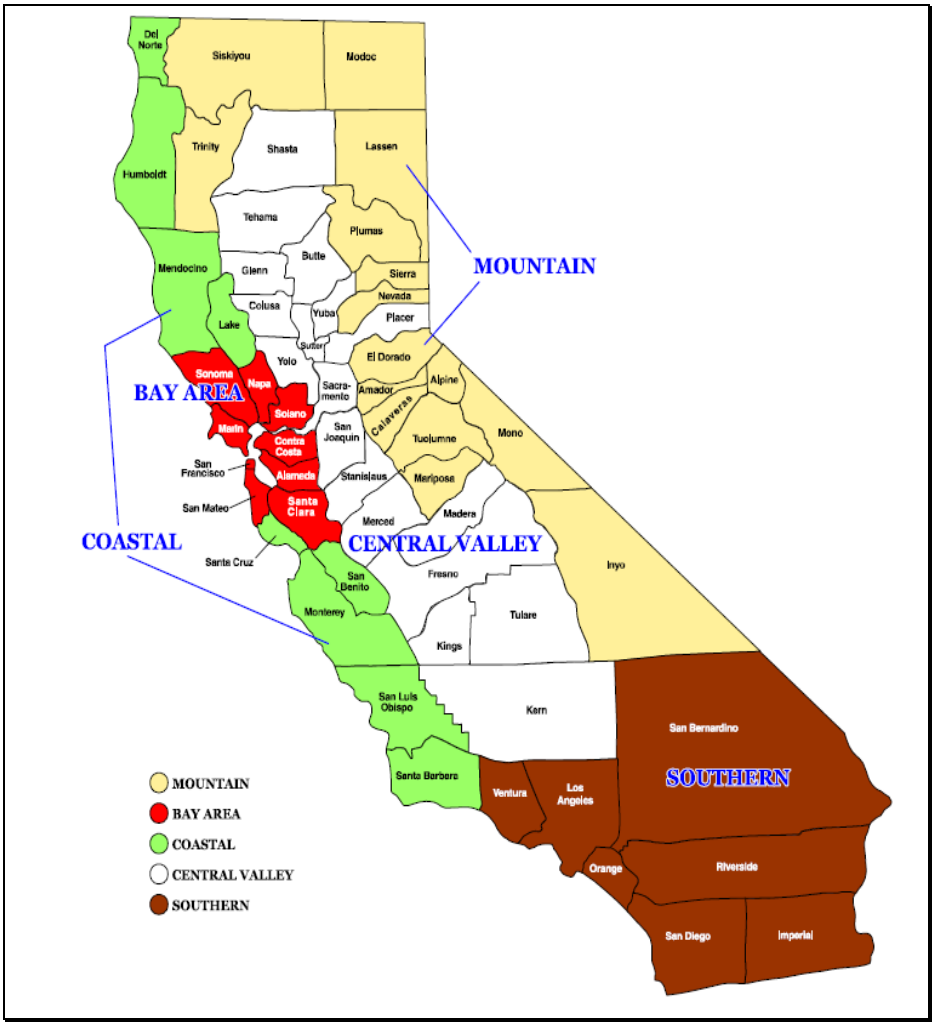

Figure 2. Map of Geographic Regions Used in the Board's Waste Characterization Studies

Approach to Gathering Infrastructure Information

Information on California waste management and recycling facilities will be gathered through the following means:

- Wherever possible, data will be gathered from existing sources or by coordinating with ongoing Board data gathering activities. See Existing Infrastructure Information Sources for a preliminary list. At a minimum, existing sources will be used to develop and update an inventory of facilities.

- Where necessary, facilities will be surveyed and/or provided with web based self-reporting capabilities to provide or update data periodically. At a minimum, all facilities will be invited to review current information on file and correct it.

- Where necessary for reporting aggregated data by region and for modeling calculations, key data gaps will be filled based on extrapolation and/or estimates. Such estimates will not be reported for specific facilities. We expect to request feedback on a proposed approach to extrapolation in summer 2009.

Approach to Delivering the Information

The Infrastructure Project is scheduled to culminate in the launching of a new web page within the Board's existing Web Site in April 2010. The web page will have several features generally grouped into two categories, the infrastructure inventory and the infrastructure model, as described below. For more detailed information and examples of similar web sites see Approach to Designing the Infrastructure Information Web Site. For details on the model see Approach to Modeling Waste Generation and Infrastructure Needs.

Delivery of Infrastructure Inventory Information

The home page of the Infrastructure Information Web Page will likely show a map of California with a range of default infrastructure facilities shown. Preliminarily, we envision that users will be able to:

- Limit the facilities shown on the map by selecting counties or pre-defined regions, providing a clearer map and eliminating from view areas that may not be of interest
- Limit the facilities shown on the map by selecting desired facility categories and/or limiting other facility options
- See the location of different types of facilities on a map, with different categories of facilities identified by color or icon
- View, print, or download a listing of the selected/visible facilities
- Select a specific facility to view, print, or download detailed information about it
- View, print, or download the map image
- View, print, or download aggregated waste management and recycling information for a specified region (the system may default to larger regions when aggregating data to address confidentiality concerns)

- Click links to navigate to other parts of the CIWMB web site
- View details about when and how the data were obtained

Delivery of Infrastructure Modeling Results

The project involves developing a model for projecting waste generation and analyzing infrastructure needs based on user-defined hypothetical scenarios. The model results are intended to be suitable for broadly estimating the need for new facilities by region. However, the model results are not intended to provide detailed analysis sufficient to support planning, design, or financing of specific facilities. Such implementation oriented activities will require detailed analysis specific to companies, sites and markets that is beyond the scope of this project. User feedback gathered during the initial stakeholder engagement portion of this project will help the project team design the final user interface.

The initial concept of the model is that users will define the scenarios for a certain region by entering in the assumed percentage of material categories being analyzed which are diverted and disposed in given years. The model will then project infrastructure needs and shortfalls by type of facility and region. Users may also be able to alter the models underlying assumptions for economic and demographic trends, thereby allowing them to run "optimistic," "base case," or "pessimistic" scenarios for growth in waste generation.

Because of the complexity of modeling and the need to carefully interpret results, we preliminarily envision that the model will be available only to certain assigned Board Staff. However, in addition to requesting Board Staff to assist in modeling queries, the Infrastructure Information Web Page will offer the public access to the results of several different modeling exercises designed to address a range of useful standardized questions. Preliminarily, these questions may include:

- How would a specified increase or decrease in population over a certain time impact waste generation, diversion and infrastructure capacity needs?
- How would a specified increase in the statewide diversion rate for certain material categories impact infrastructure capacity needs?
- How would a ban on use of selected materials as alternative daily cover impact infrastructure capacity needs?
- What would be the impacts on available composting infrastructure capacity if certain conversion technology facilities were sited?
- What are the infrastructure capacity implications of the current significant drop in export demand for certain material categories?

With Board Staff's assistance, users would be able to apply the model to answer these questions for regions within the state according to their own defined diversion and disposal scenarios.

Again, the final user interface will be developed considering stakeholder feedback.

Conclusions and Next Steps

The Infrastructure Project aims to improve upon currently available information on California's waste management and recycling facilities. The project is designed to address user needs and concerns, and this Overview and Vision Paper was prepared to assist stakeholders in providing feedback and suggestions. Please take a moment to complete an on-line survey.

The project team is scheduled to post the results of the User Needs Assessment in March 2009, and a final approach to completing the project will be available in Summary 2009. The project is scheduled to culminate in the launch of a new Infrastructure Information Web Page within the Board's existing site in April 2010.