Facility Information Toolbox (FacIT)

Facility Information Toolbox (FacIT) Archived

The Facility Information Toolbox (FacIT) was a facility inventory of California's solid waste handling, recycling, and market infrastructure, and a capacity projection model. The facility inventory included primary processors (transfer stations, materials recovery facilities, compost facilities, etc.) and secondary processors (recycled feedstock producers, recycled product manufacturers, etc.), emerging technology facilities, disposal facilities, and some primary collection facilities. The capacity model predicted future waste amounts and the need for new recycling and solid waste facilities in California.

FacIT was developed as facility participation improves data quality.

Data Search and Tools

- Statewide Quick Facts
- Facility Equivalents Table

About the Project/Data

- What is FacIT?
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Facility Data Updates

- Why Participate in FacIT?
- View/Edit/Verify your Facility Data
- Confidentiality/Data Ranges
- Add a New Facility

CalRecycle Staff-Assisted, Custom Data Reports

If you cannot find the data you need in the Data Search and Tools above, you can request a report on the Data Products page. CalRecycle staff will analyze your data request to determine if it can, in fact, be met with FacIT data and, if so, develop a custom report for you. The results will be in MS Excel format.

If you did not find the data you want in FacIT, try these other resources:

- Data Central: An information hub that provides quick access to a variety of CalRecycle and other data sources, including:
  - Other CalRecycle databases: Descriptions of, and links to, other databases with facility- or recycled materials-related information
  - Other state and federal agencies: Links to webpages for environmental-related agencies.
  - Local Governments: Links to webpages for local and regional materials collection and other recycling/waste-related information.
- Local Government Central: Links to webpages for all aspects of integrated waste management issues and other recycling/waste-related information.
- CalRecycle Home Page: Search the entire CalRecycle website for topics of interest.

Facility Information Toolbox (FacIT)

View/Edit/Verify your Facility Data

FacIT data and tools are only as accurate/useful as the information provided by facility operators. This page allows operators to view and update their data currently in the database, or add a new facility or activity. See the glossary for definitions of technical terms.

How to get started on viewing and editing your data:

You can view the FacIT data about your facility two ways:

- To view what the public sees about your facility: go to the Detailed Facility Search page and enter the name of the facility, or select the county where your facility is located and select the search button to see a list of all facilities. Once you find your facility, select your facility name. If your facility is not listed, please send your facility name, a description of the activities at your facility and your contact information including a phone number to FacIT@calrecycle.ca.gov and we will assist you in adding your facility to our inventory list.
- To view your complete data set as stored on our secure FacIT server: go to the facility operator log on page and enter your unique password "Key".
  - If you own or operate a recycling and/or waste management facility in California and do not have an access password, please sign up for one on the CalRecycle WebPass home page. Once you have created a CalRecycle WebPass, please email us at FacIT@calrecycle.ca.gov and we will assist you in accessing your account.
  - **Steps in the WebPass process:**
    - Sign up for a WebPass on the CalRecycle WebPass home page.
    - Send us an email at FacIT@calrecycle.ca.gov and we will set up access to your account.
    - The operator can then use the WebPass and a chosen password on the operator log on page and access their own facility data on the secure data server.
    - Thereafter, a facility operator can use the password at any time to enter, view or edit their own facility data.

How to edit and verify your facility, activities or materials data:

- In order to maintain data accuracy and eliminate obsolete information, facility operators are requested to update their FacIT listing information at least annually or whenever changes are made to your operations.
- Go to the facility operator log on page and enter your WebPass and password.
- Please check all the data fields for all tabs and make corrections or changes as needed. Remember to use the save data button at the bottom of every data page to ensure your changes are saved.
- When all the settings and data meet your needs and look satisfactory, select the "VERIFY" button at the top of your data home page before exiting.
- If you need assistance or have a question, please email FacIT@calrecycle.ca.gov. CalRecycle is also interested in any information about facilities that will assist us in maintaining the most accurate data.

How to add a new facility, or delete a closed one:

If your facility is not yet listed in the FacIT inventory, or has ceased operation, please email your name and phone number to FacIT@calrecycle.ca.gov for assistance. See the add a facility web page for more information on new sites.

Non-Facility Operators

If you are not a facility operator but have facility data you think could help improve FacIT, please email us at FacIT@calrecycle.ca.gov.

California Department of Resources Recycling and Recovery (CalRecycle)

Facility Information Toolbox (FacIT)

Statewide Quick Facts

The Statewide Quick Facts page contains summary information and highlights of the FacIT facility inventory and capacity projection model for California's solid waste handling, recycling, and market infrastructure. The data estimates represent a “snapshot in time” of conditions based on 2009 data.

- Use the Detailed Facility Search and Quick Activity/Material Map to get information in more detail.
- See the Glossary for definitions of technical terms.
- For more limited, but more current data, see the Facility Counts by Activity page or the Estimated Facility Capacity and Throughput page.

Three Key Findings from the Facility Inventory Analysis:

- **At the Statewide Level There is Currently Ample Disposal Capacity**

  At the statewide level there is currently ample disposal capacity available for solid waste at municipal solid waste landfills, construction and demolition/inert landfills and transformation facilities. There is nearly 50 million tons of annual disposal capacity available for additional disposal, over and above the 33.2 million tons per year that were disposed in-state in 2009. Less than 400,000 tons of solid waste was exported out of state in 2009, and this amount could easily be handled by California facilities if needed.

- **At the Statewide Level, Intermediate Processing Capacity is Sufficient, but Organics Management is Tight**

  In the FacIT system, intermediate processing involves size reduction and preparation of materials for sale or shipment to end markets. Intermediate processing facilities include:

  - materials recovery facilities and paper stock processors which process mixed recyclables,
  - organics management facilities including composters and chip & grind facilities which process organic material and
  - construction & demolition processing facilities which process construction and demolition materials.

  At the statewide level, the amount of additional available capacity for recyclable material processing and construction and demolition processing is estimated to be almost double the amount of the current processing throughput. The additional available capacity for organics management is about only one-third more than is currently processed in the state.

- **Capacity at California Recycling Manufacturing Facilities is Generally Insufficient**

  The capacity of recycled product manufacturing facilities in California is generally insufficient to handle the volume of processed recyclables (paper, glass and plastic) produced by intermediate processors (i.e., materials recovery and paper stock processing facilities). This means that California will be strongly dependent on foreign export markets to absorb future increases in recycled feedstock materials.

Statewide Capacity Projection Model Results

The FacIT Capacity Projection Model can generate a wide range of results for many different theoretical user-defined scenarios, at the statewide, regional or county levels. The following are two high-level conclusions that can be drawn from the model scenarios.

1. **Disposal Rates Could Take Several Years to Rebound to Pre-Recession Levels**

   Waste disposal statewide dipped markedly beginning in 2007, and this trend continued through 2009 and into 2010. An econometric projection of future disposal using published estimates for economic activity and population growth shows that, holding current diversion rates constant, statewide total disposal levels will only slowly rebound and might not exceed pre-recession levels until beyond 2020. At local and regional levels, the details of these trends will vary; the general trend will hold true for most areas of the state.

2. **At the Statewide Level and for Most Counties, There is Generally Ample Disposal Capacity to Cover Expected Needs**

   Disposal capacity statewide is currently projected to be sufficient through 2025, even assuming high disposal projections in 2025. The remaining lifetime capacity would still remain at 10 times the projected total annual disposal. Available capacity on an annual basis (i.e., based on permitted maximum input quantities) at landfills and transformation facilities is still well above the estimated 2025 annual disposal amount.

Facility Information Toolbox (FacIT)

Facility Equivalents Table

This page presents the average amount of capacity at various types of facilities. See the Glossary for definitions of technical terms.

If you have used the other FacIT tools to identify a potential future disposal facility capacity shortfall in your chosen planning area, you can use this data to develop a rough estimate of the number of new facilities that would be needed to eliminate capacity shortfalls.

Facility Activity Type	Average New Facility Capacity in Tons per Year
Alternative Energy and Fuels	110,000
Anaerobic Digestion	23,000
Beneficiation	187,000
Biomass-to-Energy	182,100
Chip and Grind	24,000
Compost	37,600
Construction and Demolition/Inerts Processor	176,000
Electronic Waste Processor	N/A
Glass Products Manufacturer	52,900
Landfill/Transformation	1,191,000
Materials Recovery Facility	155,000
Metal Refiner or Metal Products Manufacturer	375,000
Metal (Scrap) Processor	N/A
Municipal Solid Waste Materials Recovery Facility	1,072,000
Paper and Paperboard Manufacturer	81,900
Paper Stock Processor	111,000
Plastic (Recycled) Products Manufacturer	20,200
Plastic Shred and Grind Processor	9,900
Plastics Reclaimer	18,100
Tire-Derived Fuel	21,200
Tire-Derived Product Manufacturer	2,400
Tire Retreader	1,400
Tire (Waste) Processor	41,500
Used Oil Processor	107,033

These are generalized planning estimates that use rough approximations of average facility capacity. The data are not designed to be accurate or reliable enough for significant policy or financial decisions without additional research. It is only meant to stimulate preliminary planning and discussion of potential future management scenarios among stakeholders.

Facility Information Toolbox (FacIT)

What is FacIT?

This webpage provides an overview of the CalRecycle Facility Information Toolbox (FacIT). See other web pages for more details on specific features.

Description

FacIT is a set of information tools on CalRecycle's website that provides:

- A searchable database of information on California disposal and recycling facilities:
  - Facility data is searchable by facility name, county, region, and zip code or by an activity or material type. The facilities are visibly displayed on a map and the data is accessible by choosing the map symbol.
  - Data about each facility includes contacts, activities, the types of materials inputs or outputs, capacity and other useful facts.
- Scenarios produced by the Capacity Projection Model that:
  - Estimates future needs for new recycling and waste management facilities in California. Model outputs include projected waste disposal from 2010 through 2025 by county, region, and statewide.
  - Identifies facility gaps by comparing projected facility capacity with projected material flows.
- Instructions for facility operators who want to add new sites or edit existing site information to the facility inventory in FacIT.

Goals

The main goals of the Facility Information Toolbox are to:

- Enhance and expand CalRecycle's existing information base about California's solid waste management and recycling facilities to better satisfy stakeholder needs.
- Provide easy public access to reliable data on individual waste management and recycling facilities and summary statistics about the status of the current infrastructure system.
- Help stakeholders plan for future growth by projecting infrastructure demand, capacity and potential disposal growth.
- Involve facility operators and other stakeholders in maintaining a high level of completeness and accuracy for the infrastructure inventory data through a process of periodic updates.

The Purpose of FacIT

FacIT provides generalized information to assist local, regional and state government planning efforts

- FacIT yields high-level information that is not suited for supporting detailed development or financial decisions.
- FacIT results should always be cross checked with local sources and other experts or further investigated before use.
- While the FacIT project goal is to provide as complete and accurate database as possible, some inconsistencies and data gaps will occur.

Facility Information Toolbox (FacIT)

Data/Model Limitations

This page discusses the completeness and accuracy of the inventory entries, data values and estimates used in FacIT. The initial FacIT inventory was developed through a search of publicly available data sources, advice from industry experts, and professional estimates. Facility operators were then asked to review and correct their data.

The Purpose of FacIT

The purpose of FacIT is to provide generalized information to assist local, regional and state government planning efforts.

- FacIT yields high-level information that is not suited for supporting detailed development or financial decisions.
- FacIT results should always be cross checked with local sources and other experts or further investigated before use.
- While the FacIT project goal is to provide as complete and accurate a database as possible, some inconsistencies and data gaps will occur.

Inventory Quality

In FacIT, facility operator participation in and maintenance of their data is voluntary; the inventory cannot be more accurate than the sources.

Some classes of facilities/material suppliers such as brokers, retailers, distributors and mobile operations are not included by design.

Material reuse facilities such as thrift store reprocessing centers or product refurbishers/rebuilders are also not in the inventory.

Due to the recent economic recession and continued unsettled market conditions, some facilities may no longer be operating or have changed operations; changes may be occurring faster than the FacIT annual inventory update cycle.

Not all recyclables collection facilities are included; only those that are permitted by CalRecycle and participate in a development program or receive grants. Some materials such as electronic waste collection sites and beverage container redemption facilities are listed in separate CalRecycle databases and are not yet included in FacIT.

Facilities, activities and materials are grouped into generic categories; not all materials are accepted/processed at all times.

Data Quality

While all facility operators are invited to view and verify their data, not all participate; so data quality may vary.

Where actual data was not supplied or could not be found from an independent source, industry averages or expert opinion was substituted.

Due to confidentiality concerns, throughputs and capacities are reported on the webpage in ranges, not absolute numbers.

All material amounts except used oil were converted to Tons-Per-Year using CalRecycle conversion factors. Compression factors were used in converting cubic yards to tons for landfilled wastes. In reality, the average densities may vary. See the FacIT Conversion Factor Tables below for more detail.

- Conversion Table 1 presents the estimates of equivalency of material types in differing units— for example, one liter of used oil is approximately .26 gallons.
- Conversion Table 2 presents the estimated density in tons per cubic yard for various material types as used in the waste projection and capacity model calculations.

Data is updated annually or as facilities choose to participate, so data may lag changes in the marketplace.

Terms like throughput and capacity may be defined differently than in common industry usage. See the Glossary for definitions of technical terms.

Model Estimate and Projection Quality

The FacIT model is a one-time effort to explore relationships between facilities. While inventory data and projection factors will be updated periodically, the relationship algorithms will not be changed, so model precision will decrease over time.

The recent economic recession resulted in abrupt shifts in quantities and markets, complicating data trend analysis and predictions.

The cost of materials transportation was not used as a factor in limiting how materials flows; excess materials were assumed to flow first to nearby counties and then within their FacIT region.

Past flows of transporting materials, such as import and export for waste or recyclables across county lines, were assumed to continue into the future.

For More Information

Have questions or seeking additional information on the FacIT data limitations, model or the contractor's final report? Please send an email to FacIT@calrecycle.ca.gov.

Facility Information Toolbox (FacIT)

Frequently Asked Questions (FAQs)

The Facility Information Toolbox (FacIT) is a facility inventory and capacity projection model of California's solid waste handling, diversion, and market infrastructure.

What kind of data is in the FacIT inventory?

There are four basic types of facilities listed in the FacIT inventory:

- Waste disposal facilities such as landfills and waste transformation to energy plants.
- Recyclables initial collectors (government permitted programs such as household used oil collection sites).
- Recyclables processors that sort and separate out recyclable material to produce industrial feedstock. Examples include materials recovery facilities, construction and demolition facilities, and composting/chip and grind facilities.
- Recycled materials manufacturers that take feedstock and further process and/or manufacture it into marketable material or recycle-content finished products. Examples include glass beneficiation and paper products plants.

Information about the listed facilities includes:

- Location and public contact information
- Activities at the site and tonnage throughput ranges
- Materials taken in and produced
- Other information if supplied by the facility (hours of operation etc.)

How accurate and complete is the data in FacIT?

FacIT data is only as accurate/useful as the information provided by facility operators. FacIT data has been compiled from CalRecycle databases, professional estimates, and industry sources to give a best estimate. Look for the “Verified” logo on the data listing page to see if the facility operator has edited and corrected the data to be the best information available.

How can I find somewhere to take my household recyclables?

If you have household recyclable materials (such as used oil), search a listing of recycling locations near you on the Data Central page. Also, try the Earth 911 database.

How often do facility operators have to update their data?

Participation is voluntary. In order to maintain data accuracy and eliminate obsolete information, facility operators are requested to update their FacIT listing information at least once annually or whenever changes are made to their operations.

Why should facility operators keep their FacIT data up to date?

The CalRecycle website receives more than 1 million unique visits annually. The FacIT pages will provide an additional layer of visibility for marketing your business.

The FacIT webpage shows your facility when searching for a facility on a map. When a visitor clicks on that symbol, they will see information about your facility, including: how to contact you, what operations you conduct, what materials you are interested in receiving and/or the products you offer, whether you do business directly with the public, and other details.

Please let us know if the data regarding your facility needs updating.

Potential clients and business associates will be able to quickly find your facility, learn about it, link to your website, or send you an e-mail.

What does it cost to have my facility listed on the FacIT website?

There is no cost to you to be listed, but we do ask that you annually update your information on our website.

How can I view what the public sees about my facility?

Go to the detailed facility search, enter the name of the facility, or select the county where your facility is located, click the search button to see a list of all facilities, and click on your facility name.

My facility is not on the FacIT list. How can I get it added it to the inventory?

If your facility is not yet listed in the FacIT inventory, or has ceased operation and should not be listed, please e-mail your name and phone number to FacIT@calrecycle.ca.gov.

How can I edit and verify data about my facility, activities or materials?

In order to preserve confidentiality, facility operators must log on with a unique password “Key” to the secure CalRecycle website server when editing their information. If you do not already have an access password, please email us at FacIT@calrecycle.ca.gov and we will reply with instructions on how to create a CalRecycle access WebPass. If you have a Web key and password, enter them on the log on page to access your site. More detailed information is available on the View/Edit/Verify your Facility Data page.

Facility Information Toolbox (FacIT)

FacIT History/Publications

This page lists descriptions of and links to the historic design and development documents for the FacIT project (formerly known as the Recycling and Waste Management Infrastructure Project).

The California Integrated Waste Management Board (now known as the Department of Resources Recycling and Recovery or CalRecycle) contracted with consultants in July 2008 to develop the Facility Information Toolbox (FacIT) Project, a disposed and recycled materials facilities information system for use by CalRecycle staff and the general public.

Project responsibilities were shared among the CalRecycle Knowledge Integration Section, the CalRecycle Information Technology Services Branch, and R.W. Beck/SAIC as principal contractor. The FacIT team received input from a government and industry expert Technical Advisory Committee that assisted with the project design, goals and data sources and from many stakeholders from government, industry and the environmental community.

The main goals of the FacIT Project as described in the approved Scope of Work were to:

- Analyze the solid waste infrastructure information needs of major stakeholder groups.
- Develop a comprehensive inventory of California's disposal, recycling, and market infrastructure, including landfills, primary processors (such as transfer stations, material recovery facilities, and compost processors), secondary recycled materials processors and manufacturers, and emerging technology facilities. Targeted material types are the major materials in the municipal and commercial waste stream.
- Enhance CalRecycle's existing information on solid waste facilities and activities with more detail about materials handled, volumes, and other operational factors.
- Launch a new webpage within CalRecycle'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 computer model to plan for future facilities by projecting estimated disposal amounts, and calculating potential disposal and recycled materials processing infrastructure capacity gaps to 2025 under a range of different assumptions and scenarios.
- Design a flexible and scalable system that could accommodate additional materials and facility types in the future.
- Establish a process for regularly updating the information database, model and webpage.

Process

Based on the project goals in the contract scope, the team developed a set of draft "Vision Papers" outlining a preliminary design for the Facility Information Toolbox including definitions for the facilities, material types, and key data fields to be used in the system; the identity of data sources and a data gathering approach; an outline of the key elements of the Capacity Projection Model; and a broad design for the FacIT webpage that would allow public access to the results.

The project team then posted the draft Vision Papers to the CalRecycle website and used them as the basis for a systematic effort to assess the perspectives of different stakeholder groups on the project, mainly regarding the type of information that should be provided and how it could best be delivered. The assessment included:

- Informing more than 11,000 existing CalRecycle stakeholders about the project via email, inviting them to review the Vision Papers, and soliciting feedback through an online opinion survey. This resulted in approximately 200 completed survey responses.
- Conducting more extensive personal or phone interviews with 28 stakeholders representing a wide range of government agencies and private sector companies involved in waste management and recycling.
- In-depth briefings and discussion meetings with CalRecycle executive management, CalRecycle operations management and staff, and the project's Technical Advisory Committee members.

In general, the User Needs Assessment Report results tended to corroborate the original project goals and approach outlined in the draft Vision Papers. More than 50 percent of survey respondents rated as “very important” the goals of improving CalRecycle’s infrastructure inventory information system, launching a map-based inventory webpage of facilities, and establishing a system to regularly update the infrastructure inventory. A slightly smaller percentage of survey respondents, 37 percent, indicated that developing a model to estimate future waste generation and facility needs was “very important.”

Based on the Needs Assessment feedback and continuing research and discussions between CalRecycle staff/management and the contractor team, a series of briefing papers outlining a framework for the Facility Information Toolbox system design was completed. This was used as a blueprint for completing the remainder of the project, with modest refinements being made as needed as the project evolved.

CalRecycle's Knowledge Integration Section and Information Technology Services Branch then used the consultant’s final framework report as a basis for further refining, correcting and designing the FacIT inventory, model and website.

Facility Inventory

In an effort to keep the data system manageable, the facility inventory focused on gathering only a limited number of priority data elements for each facility. Because of the project’s focus on analyzing capacity gaps, the targeted data fields pertain mainly to facility activities, materials and capacity amounts. The extensive data-gathering approach was to first develop a draft database from a wide range of secondary data sources, and then to contact the facilities to have them review, adjust, and verify their data.

The Capacity Projection Model

The primary purpose of the Capacity Projection Model is to provide a tool for projecting future capacity gaps at disposal facilities over a 15-year planning horizon, based on forecasted disposal tonnages and a variety of user-defined scenarios. Forecasts for future disposal use high, low and baseline growth assumptions. Model users can define the geographic area to be modeled (which can be any county or combination of counties, four pre-defined regions, or statewide and whether they want to use the low, high or baseline projections for future disposal). The model outputs summarize these material flows and provide an analysis of potential facility capacity gaps. A Facility Equivalents Table has the average facility size data for each activity type allowing users to estimate the number of facilities that might be needed to fill the capacity gaps.

Ongoing Development

CalRecycle staff will continue to work on adding new features to the FacIT website; create a link to our site and check back periodically for improved data and tools. FacIT was designed so it can be expanded to accommodate more facilities, activities and materials in the future. FacIT depends on our users to help keep the data accurate and up to date. We welcome your help and your suggestions for improving the FacIT tools, data and the website.

Project Development Documents

FacIT Project Executive Summary – A brief look at the highlights of the project development process and major findings as prepared by CalRecycle staff. For more information on the FacIT Project Executive Summary, please email FacIT@calrecycle.ca.gov.

FacIT Project Full Report – the project consultant’s full history of the project and their recommendations for a project framework, with multiple appendices. These original recommendations were further refined and used by CalRecycle staff to build the FacIT facility inventory, capacity projection model, and website. For more information on the FacIT Project Full Report, please send an email to FacIT@calrecycle.ca.gov.

User Needs Assessment Report summarizes the design ideas and advice collected early in the project from a wide range of waste industry and CalRecycle staff stakeholders who guided the design process for data collection, modeling and web display.

Facility Information Toolbox (FacIT)

Glossary of Terms/Definitions

This page lists definitions for the key terms, data fields and acronyms used in the FacIT inventory database and waste projection model. Note: These terms are defined specifically for the purposes of FacIT, and they may be used differently in other contexts, such as CalRecycle permits or common industry usage.

Acronyms

A-Z

Definitions

A-C | D-F | G-K | L-P | Q-S | T-Z

Activity—A specific category of facility use defined by the types of materials accepted and waste management or recycling functions performed at the site. In this project, a "facility" is a given site. Any given facility may undertake a number of different activities.

Aggregated Flows and Activities—Any combination of material categories analyzed together (aggregated flow) or any group of activities analyzed together (such as material recovery facilities and paper stock processors) to determine capacity gaps or surpluses.

Alternative Daily Cover (ADC)/Alternative Intermediate Cover (AIC)—The use of CalRecycle approved materials (e.g. green waste) to cover disposed waste in a landfill cell at the end of the landfill operating day (daily cover) or at some other interval (intermediate cover) to control odors, fire, vectors, litter, and scavenging. Traditionally, earthen materials, such as soil, are used for cover. Alternative cover materials include tire shreds and low-grade wood chips. In California, proper use of ADC/AIC allows the material to be classified as "diverted through recycling," and does not "count" as disposal.

Annual Disposal Limit—In the FacIT Model, each landfill and permitted transformation facility has an annual limit on the amount of solid waste it can take in from all sources. The theoretical annual limit is calculated as the daily disposal amount limit shown on the facility operating permit summed up for an entire year.

Annual Facility Capacity—In the FacIT System, unless otherwise qualified, the term capacity means the estimated theoretical maximum amount of material in tons that a diversion facility reports that it can accept in a year for a given activity. Annual Facility Capacity reflects all relevant considerations including CalRecycle or local permit limitations, facility design constraints and ideal operating conditions as interpreted by the facility operator. Some exceptions include:

- In the Capacity Projection Model, oil facilities are assumed to have unlimited capacity for collection per year.
- Where Annual Facility Capacity is reported in other measurement units, (for example cubic yards or passenger tire equivalents, or in other time periods such as per day or per month), capacity data is usually converted to tons per year for use in the Facility Inventory and Capacity Projection Model.

For certain facility types, permitting limitations and terminology may complicate the estimate of capacity. For example, tire processing facilities have permit limitations on the number of tires that can be stored on site at a given time, and compost facilities have restrictions on the amount of certain materials that can be stored on site per day. In these cases, annual capacity was estimated based on the reporting facility's or the analyst's best judgment.

Annual Landfill Disposal Limit—In FacIT, an Annual Disposal Limit is the maximum quantity of material inputs that a landfill can receive annually, generally given in tons per year, based on the facility operations permit caps. The permit cap amount may be higher or lower than the design capacity of the facility. Exceptions to this limit can be made for declared disasters and public emergencies.

Anaerobic Digestion—The process of biologically decomposing organic matter with little or no oxygen in a fully enclosed structure (in-vessel digestion) to produce biogas, liquid fertilizer and compost. Often used at wastewater treatment facilities or dairies.

Available Annual Facility Capacity—In FacIT, the Available Annual Facility Capacity means the estimated amount of capacity in

tons per year for a specified activity that is still available after subtracting the facility's throughput.

Beneficial Reuse—Using a waste byproduct or other low-value material for a productive use, other than ADC/AIC, at a landfill within regulatory guidelines. Examples include demolition waste that is used as road base or cell wall construction.

Beneficiation—Glass beneficiation is the process of upgrading the value or utility of glass, typically by sorting, removing contaminants, and crushing so it can be used as an industrial feedstock for glass manufacturing facilities.

Biomass Conversion—The process of using controlled combustion of specified types of organic materials (essentially wood, lawn or crop residue) to produce electricity. Not permitted as a solid waste facility or regulated by CalRecycle. See PRC 40106 (a).

Capacity Shortfall—In the FacIT system, a Capacity Shortfall is the shortage or gap for a given activity to manage projected incoming tonnages.

Capacity Surplus—In the FacIT system, a Capacity Surplus is the projected excess capacity that is available beyond what is currently managed for an activity.

Chipping and Grinding—The process that separates, grades and resizes woody green wastes or used lumber to be sent to a composting facility, used at a landfill for Alternative Daily Cover (ADC) or sent to miscellaneous end markets such as feedstock at biomass to energy plants.

Collection/Transfer—Collection of materials from the public or collection firms for shipping to recyclers or disposers. Some secondary consolidation or salvage may occur during temporary custody of the unprocessed material.

Composting—The process of taking organic materials such as green waste, manure, food waste and other organics and transforming them through controlled biological decomposition for sale as an end product, usually in the form of home or farm soil amendments.

Compostable Organics—Organic materials that are accepted and managed by typical composting activity operations. This usually includes green waste, food waste, and manure, but excludes wood, lumber and manmade organics such as carpet.

Construction and Demolition Materials (C&D)—Includes, but is not limited to concrete, wood, and drywall, usually found as a mixed material. C&D materials are usually taken to a C&D processing facility for intermediate processing such as sorting by material type and size reduction for construction fill or raw feedstock material. C&D materials that have no market can be taken to a C&D disposal facility and are not reported as disposed material for calculating local jurisdiction recycling rates.

C&D Materials Manufacturing—The production of finished manufactured products from recycle construction & demolition materials.

Construction and Demolition (C&D) Processing—The process of separating, recovering, reducing the volume, and preparing C&D materials for further processing or wholesale distribution. C&D materials include, but is not limited to concrete, wood, and drywall.

Disaster Relief Operation—An operation that is established because there has been a proclamation of a state or local emergency.

Disposal—The process of collecting municipal solid waste and transferring it to a transfer station, landfill or transformation facility.

Landfill disposal amounts aggregated to a large area such as a county, FacIT region, or statewide are calculated two ways (using a county as the example):

- Managed Disposal - The total amount of disposed waste material handled by in-county permitted municipal solid waste facilities regardless of where the disposed materials originated (calculated as: in-county created disposed or transformed waste, waste imported into the county from another county for disposal. It excludes any waste exported out of county for disposal or transformation, materials used at in-county landfills for ADC or beneficial reuse, and inert materials sent to a C&D disposal facility).
- Originating Disposal - The total amount of disposed waste material created within the county regardless of where it is sent for end disposal (calculated as: in-county created waste disposed within or outside the county. It excludes any waste imported into the county from another county for disposal, materials used as in-county landfill ADC and beneficial reuse materials and inert materials sent to a C&D disposal facility).
- Projected Disposal - The forecasting of future generated waste disposal amounts using statistical measures such as straight average trend analysis or econometric projection of population and/or economic growth.

Disposal Facility—Facilities that provide a legal site for final disposal of materials including mixed solid waste, beneficial materials used for landfill construction, ADC, and specialized material sites such as C&D, and waste tires.

Diversion—The process of managing waste in some way other than disposal at a landfill or transformation (regulated incineration) facility, so that it is reused or recycled to create new products. Calculated diversion does not include residual material from processing that is sent to disposal.

Econometric Analysis—A mathematical calculation process using historic data patterns and projected economic and demographic growth factors to predict future activities that vary depending on such data. In FacIT, econometric analysis is used to project future waste disposal amounts by county. The data is then summed to develop the regional and statewide estimates.

Electronic Waste—Electronic waste (E-Waste) includes hazardous waste materials such as televisions, computers, and other devices containing circuit boards or video screens nearing the end of their "useful life." Many of these products can be reused, refurbished, or recycled.

Electronic Waste Processing—The process of receiving materials such as televisions, computers, and other electronic devices, from collectors and preparing for shipment to market via size reduction, sorting, etc. The resulting material may be transferred to another facility for further processing or to an end-use destination.

Engineered MSW Conversion—The conversion of solid waste through a process that meets the 8 requirements of PRC 40131.2(a) regarding moisture content, tonnage restrictions, BTU per pound, pre-processing requirements, etc.

Export to Other States/Countries—The process of sending waste or recycled material out of California. Waste exported is considered disposal for CalRecycle regulatory purposes unless it is recycled or otherwise diverted from disposal at its destination. Recycled products may be exported out of state by a collector, a recovery facility, a processor or refiner, or by an export broker.

Facility—The physical location where a recycling or waste management activity occurs. More than one activity may be conducted at a single facility (e.g., a facility may conduct solid waste disposal and construction and demolition processing activities).

Facility Equivalent Table—A listing of the estimated average capacity for a number of different activities and facilities.

FacIT Region—An artificial boundary around one or more counties that serves as a constraint for the flow of materials. See Region map. Materials analyzed at the county or default "regional" level within the Capacity Projection Model are generally bound to flow within the specified region unless the user specifies a custom region.

Forecast—An analytically driven estimate of future events or values that is predicated upon the extrapolation of historical relationships and assumptions about the future.

Gasification—A non-combustion thermal process used to convert solid waste to a clean burning fuel to generate electricity. This activity must remove all recyclable materials and marketable green waste for recycling or composting. See PRC 40117.

Glass Products Manufacturing—The process of taking in mixed and/or sorted glass or processed feedstock from a generator and/or material recovery facility and/or beneficiation feedstock manufacturer and produces recycled content products for wholesale or retail market.

Household Hazardous Waste—Leftover household products that contain corrosive, toxic, ignitable, or reactive ingredients, other than used oil. HHW is not considered to be municipal solid waste material; un-recyclable household hazardous waste is sent to a specialized landfill and is not reported as disposal.

HHW/E-Waste Collection—The collection of material from the public or collection firms for delivery to processors or markets.

HHW/E-Waste Manufacturing—The use of processed household hazardous waste and electronic waste in end-use applications

Import—In the FacIT system, import refers to tonnage accepted from outside a county or region. Imported disposal materials are counted as landfill throughput for the accepting county when calculating managed waste amounts. The FacIT model does not include waste imported from another state or country.

Inerts—A category of waste that includes concrete, asphalt, asphalt roofing, aggregate, brick, rubble, and soil. Construction and demolition and inerts (CDI) materials are usually taken to a C&D processing facility for intermediate processing such as sorting by material type and size reduction for sale for construction fill or raw feedstock material. C&D materials that have no market can be taken to a C&D disposal facility and are not reported as disposed material for calculating local jurisdiction recycling rates.

Inerts/C&D Disposal—The land disposal of mixed inerts and construction &demolition material.

Initial Collector/Consolidator—Collectors transport the mixed waste or recyclable material from the generator to a transfer station, materials recovery facility or a recyclables processor. The collector is usually a municipal or commercial waste or recyclables hauling service.

Intermediate Processing—Activities which recover, separate, and/or process recyclable materials for sale to other processors or as feedstock to product manufacturers.

Intermediate Processing (Statewide)—Processes which recover, separate, and/or process recyclable materials for sale to other processors or as feedstock to product manufacturers statewide. This category is distinguished from the Intermediate Processing category for the model, which projects waste flows across the state. See Model. The materials produced by the activities under the Intermediate Processing category were determined to remain within a particular region, while the material produced by the activities under Intermediate Processing (Statewide) typically moved further across regions of the state.

Landfill/Transformation—See Solid Waste Disposal (Landfill) and Transformation, respectively.

Material Recovery Facility (MRF)—An intermediate processing facility that accepts source-separated recyclables from an initial collector and processes them for wholesale distribution. The recyclable material is accumulated for shipment to recycled content manufacturers, brokers or for export out of state. Also see Municipal Solid Waste (MSW) Material Recovery Facility and Construction and Demolition (C&D) Processor.

Medication Collection—The collection of Medical Waste (home-generated medications) for proper treatment.

Metals—Scrap metals including tin/steel cans, aluminum cans, ferrous and non ferrous metal.

Metals Refining or Manufacturing—The further processing of separated scrap to remove contaminants and melt or resize metal for use as feedstock or export out of state. Metal products manufacturers develop recycled-content finished products for wholesale or retail market.

Model—An abstraction of reality that captures the most critical elements and relationships of a system and estimates the impacts of changes in the system's variables.

Municipal (or Mixed) Solid Waste (MSW)—Garbage. Refuse that may be mixed with or contain nonorganic, processed industrial materials, plastics, or other recyclables with the potential for recovery. It includes residential, commercial, and institutional wastes.

Municipal Solid Waste (MSW) Materials Recovery Facility (MRF)—Also known as mixed-waste processing facilities, these are facilities that systematically sort incoming mixed waste loads segregating and salvaging select loads and/or employing sorting lines with manual and automated sorting technologies. Such facilities are treated as transfer stations (with higher recovery rates) in the Facility Information Toolbox since their incoming materials are mixed waste streams.

Other Energy/Fuel Technology—A technology, not otherwise specified, used to produce energy, fuel or chemicals from waste.

Organic Materials Management—Processes that grind, chip and/or decomposition organic wastes in a controlled process for intermediate or final use as a landscape material or soil amendment. See also Anaerobic Digestion, and Biomass Conversion.

Other Organics Management—Other organics management besides composting of green waste. An example is composting at a mushroom farm.

Other Recycling Manufacturing—Other recycling manufacturing not otherwise classified.

Per Capita Disposal—A numeric indicator of reported disposal divided by the population (residents) specific to a county, region or statewide.

Paper Stock Processing—The processing of mixed and/or sorted paper from initial collectors and/or a materials recovery facility. The received paper may be separated into types and/or grades, partially processed such as shredded, and/or refined to develop industrial feedstock materials. Processed paper feedstock may be sold to a paper products manufacturer or exported out of state.

Paper and Paperboard Converting—The operation of treating, modifying, or otherwise manipulating the finished paper and paperboard so that it can be made into end-user products.

Paper and Paperboard Manufacturing—The process of taking in mixed and/or sorted paper or processed feedstock from a generator and/or a materials recovery facility, and/or a paper feedstock processor. The received paper is used for the manufacture of recycled-content products for the wholesale or retail market.

Plastics Manufacturing—The process of taking in mixed and/or sorted plastic or processed feedstock from a generator and/or a materials recovery facility, and/or a plastics shred and grind and/or plastic reclaimer feedstock manufacturer. The received plastic is used in the manufacturing of recycled-content products for wholesale and retail market.

Plastic Shredding and Grinding—The processing of plastics to add further value, typically by reducing size (creating pellets or flakes). Shred and grind occurs after materials recovery facility processing and before manufacturing final products. Plastic shred and grind is considered stage one manufacturing process creating finished recycled plastic products for markets.

Plastic Reclaiming—Processing plastics to add further value, typically by separating, removing contaminants, reducing in size (creating pellets or flakes) and washing the plastics. Reclaiming occurs after materials recovery facility processing and before

manufacturing final products.

Recycling Market—Accepts separated and treated material or feedstock in order to manufacture new final products that contain "recycled" content.

Remaining Lifetime Landfill Capacity—In the FacIT system, Remaining Lifetime Landfill Capacity means the additional amount of waste in tons that a landfill is able to accept for disposal at the site from the current date into the future. (i.e., the amount of additional waste that the facility can accept before it reaches its Total Lifetime Landfill Capacity) .Remaining Lifetime Landfill Capacity is calculated as Total Lifetime Landfill Capacity minus the already Utilized Landfill Capacity. Often this information is available for the date the solid waste facility permit was last updated.

Residue—Unusable waste byproducts remaining after recyclables are processed.

Retreading—The process of retreading used tires (called "casings"). Casings are first inspected to ensure they are in suitable condition. Then worn tread is buffed away, and a new tread is bonded to the casing in a manner similar to how a new tire is made. The rubber buffings from retreader operations or tire processors are used to make tire-derived products such as rubber landscape, playground bark, and molded rubber products.

Scrap Metal Processing—The process of sorting, removing contaminants and/or crushing metal so it can be used as an industrial feedstock or exported out of state.

Sharps—Hypodermic needles, pen needles, intravenous needles, lancets, and other devices that are used to penetrate the skin for the delivery of medications derived from a household, including a multifamily residence or household.

Sharps Collection—The collection of Medical Waste (home-generated sharps) for proper treatment.

Solid Waste Disposal (Landfill)— A permitted facility that provides a legal site for final disposal of materials including mixed solid waste, beneficial materials used for landfill construction, ADC, and specialized material sites such as C&D, and waste tires. Two types of landfills are defined in the model. Mixed solid waste landfills are permitted to accept mixed solid waste and have rigidly enforced landfill capacities (total amount of waste that can be accepted in a given year and over their lifetime). Construction and demolition landfills accept only construction and demolition waste materials.

Throughput—In the FacIT system, throughput means the total amount of material actually received at a facility, in tons per year for a specific activity in a given year. If throughput is reported in other units, e.g., cubic yards, or in other time periods such as per day or per month, the amount is always converted to tons per year for use in the Facility Inventory and Capacity Projection Model.

Tire-Derived Fuel—Waste tires used as fuel in a power plant or cement kiln.

Tire-Derived Product (TDP) Manufacturing—The process of producing end products using ground rubber or other processed scrap tire feedstock. Examples of TDP include playground surfacing, flooring tiles, mats, and rubberized asphalt concrete.

Total Lifetime Landfill Capacity—Landfills are unique in the FacIT system because they are the only facility type that has a declared lifespan. For the purposes of the project, Total Lifetime Landfill Capacity means the total amount of waste in tons that a landfill reports that it is able to accept for disposal during the life of the facility. This maximum volumetric capacity reflects all relevant considerations including CalRecycle or other agency permit, landfill design, or operating constraints. This value is often available in cubic yards, requiring the use of a conversion factor (e.g., landfill in-place density, in pounds per cubic yard) to convert the data to tons. If the landfill has not reported its own conversion factor, FacIT uses a CalRecycle standard number for the conversion.

Transformation—The use of incineration, pyrolysis, distillation, or biological conversion (other than composting) to combust unprocessed or minimally processed solid waste to produce electricity. See PRC 40201.

Transfer Station—Receives, temporarily stores and ships unprocessed waste/recyclables.

Used Oil Collection—Receives used oil, temporarily stores it, and ships it off-site to another facility.

Waste Characterization Region—The California multicounty regions as defined in CalRecycle's Statewide Waste Characterization Studies are different than those shown on the FacIT Regions Map. The FacIT Capacity Projection Model uses statewide averaged waste disposal composition findings from the characterization studies as estimation factors; the model output data for each of the four FacIT Regions are based on a slightly different aggregation of counties.

Waste Tire Processing – The processing of used and/or waste tires via polymer treatment, rubber reclaiming, crumb rubber production, shredding, chipping, grinding, baling or other method to create an intermediate product or feedstock.

Waste Tire Disposal - MSW disposal facilities that landfill significant quantities of waste tires.

Waste to Energy, Fuels and Chemicals: Processes which transform, convert or digest solid waste materials to generate energy, fuels, and/or chemicals. See also Engineered MSW Conversion, Gasification, Other Energy/Fuel Technology, Transformation, and

Tire Derived Fuel.

Woods and Poole—A commercial provider of the historical and projected economic and demographic growth factor estimates used in the Capacity Projection Model for econometric analysis (refer to definition herein) predictions of disposal tonnages.

Acronyms

AD—See Anaerobic Digestion

ADC/AIC—See Alternative Daily Cover/Alternative Intermediate Cover.

BR—See Beneficial Reuse.

C&D—See Construction and Demolition Materials.

CDI—See Construction and Demolition and Inerts.

DRS—Disposal Reporting System, a CalRecycle database that includes data on the quantity of waste disposed by facility and by source jurisdiction, as well as quantities of materials used as ADC/AIC and in beneficial use applications.

EMSW—See Engineered MSW Conversion

HHW—See Household Hazardous Waste.

IT Services—Information Technology Services Branch, a branch within CalRecycle's Administration, Finance, and Information Technology Services Division. IT Services staff perform FacIT database and web design work.

KIS—Knowledge Integration Section, a branch with CalRecycle's Policy Development and Analysis Office. KIS staff managed the FacIT contract for CalRecycle and is responsible for the web page content.

LEA—Local Enforcement Agency, local government agencies that have interactions with, information about, and potentially some authority over waste and recycling facilities.

MCD—Materials Collection Database, one of several CalRecycle databases used as sources to help develop the FacIT Facility Inventory. The database contains information on where to take selected materials for recycling.

MRF—Materials Recovery Facility.

MSW -- Municipal Solid Waste or Mixed Solid Waste.

SWIS—Solid Waste Information System, CalRecycle's main database covering permitted solid waste management facilities and their regulatory permit information.

TAC—Technical Advisory Committee, a group of public agency, non-profit and waste industry representatives that provided advice to the FacIT project staff.

TDF—Tire-derived fuel, tire chips or whole tires used for energy. In California cement kilns and some co-generation facilities have historically used TDF. Its use is considered by CalRecycle to be disposal.

TDP—Tire-derived product, a product manufactured from recovered scrap tires. Examples include playground surfacing, flooring tiles, mats, and rubberized asphalt concrete.

RMDZ—Recycling Market Development Zone - a CalRecycle program involving local zones with the goal of assisting recycling businesses to develop, expand and thrive. For this project, the RMDZ database, consisting of data from the RMDZ program and RMDZ loan program, was consulted to help develop the Facility Inventory.

WTMS—Waste Tire Manifest System, a CalRecycle database containing waste tire information including data on shipment of waste tires and waste tire facility and hauler information.

Facility Information Toolbox (FacIT)

Data Products/Requests

CalRecycle staff-assisted custom data reports:

If you cannot find the data you want in a prepackaged report on the FacIT home page, or by using the Quick Activity/Material Map page or the Detailed Facility Search page to create your own custom data report, you can submit a custom FacIT data request to CalRecycle staff for assistance (as time and staffing allows). Staff will analyze your data request to determine if it can, in fact, be met with FacIT data; and if so, will develop a custom report for you. The results will be in MS Excel format.

If there is any information that could be added to FacIT or is misrepresented, please let us know by sending your comments to the FacIT inbox.

Facility Information Toolbox (FacIT)

Why Participate in FacIT?

The Facility Information Toolbox (FacIT) is a comprehensive inventory of all disposal and recycled material processing facilities in the state of California. The accuracy of FacIT data relies on the information provided by the facility operators.

If you are a Facility Operator and don't already participate in FacIT, why should you?

- The CalRecycle website receives more than 1 million unique public and business visits annually and the Facility Information Toolbox will provide an additional layer of visibility for marketing your business.
- When a visitor clicks on your symbol on one of the search maps, they will see information about your facility, including: how to contact you, what operations you conduct, what materials you are interested in receiving and/or the products you offer, whether you do business directly with the public, and other details.
- Potential clients and business associates will be able to quickly find your facility, learn about it, link to your website, or send you an e-mail.
- There is no cost to be listed, but we do ask that you annually update your information on our website. For your convenience, we may have compiled information about your facility (from CalRecycle databases, professional estimates, and industry sources). All you have to do is view and edit the data.
- CalRecycle has an extensive program to ensure that any confidential information provided to FacIT is secure. See the Confidentiality/Data Ranges page for more details.

How to Participate:

- Please visit our View/Edit/Verify your Facility Data page to learn more.

Facility Information Toolbox (FacIT)

Confidentiality/Data Ranges

FacIT is a comprehensive inventory of all disposal and recycling facilities in the state available on CalRecycle's website. FacIT data and tools are only as accurate/useful as the information provided by the facility operators.

Major Confidentiality Features

Much of the information in the FacIT facility database is drawn from public sources such as public databases, news sites and commercial search engines. However, some data such as facility tonnage throughput, total capacity, available capacity, and percentages of the various materials handled is collected directly from cooperating facility operators. These numbers are considered confidential and CalRecycle has an extensive program to ensure that the information is kept secure. Some features are:

- Only the facility operator and a few CalRecycle technical staff may view and edit the confidential information by logging on to a secure CalRecycle website server with a unique WebPass and password.
- The confidential information is stored on the data entry form in a way that makes it clear to the facility operator which numbers are considered confidential and how they are used. A shield symbol indicates numbers to be displayed only as a range and a padlock symbol indicates that the information is never displayed to the public, only used as aggregated data in the waste capacity projection model. An Example Page was created to see how the data is displayed in the database.
- Confidential annual facility tonnage throughput and annual facility total capacity numbers on the CalRecycle website are never available to the public as a raw number; only broad ranges are shown. For example, an actual facility capacity of 300,000 tons per year would be shown on the website as being within the range of 100,000 to 499,000 tons/year.
- The annual available capacity tonnage number and the input/output percentages of the various materials handled are never available to the public on the CalRecycle website. These are only used in calculations of capacity at the county, region or statewide level in the FacIT model.

Confidentiality Process

CalRecycle has a process to ensure that any confidential information provided to FacIT remains secure:

- The initial set of facility data is compiled from public sources and professional estimates.
- Facility operators are then asked to verify or edit the data about their facility to ensure the most accurate information possible goes online.
- Companies providing information are clearly informed of which requested information will be treated as confidential and which may be released to the public. A Confidentiality Policy and agreement is offered to facility operators to ensure restricted access and disclosure of any sensitive information.
- Sensitive data for an individual facility is masked from the public through the use of data ranges; some types of data are hidden entirely and only used for internal calculations.
- Facility operators can view and edit their inventory information by logging on with a unique password to a secure CalRecycle website server.
- CalRecycle staff access to sensitive data/information is password-protected and limited to only a few technical staff maintaining the FacIT database.
- Confidential company or facility-specific data from multiple facilities is reported only as a summary number (e.g., as totals or averages across multiple facilities). The data is also aggregated at a geographic level with a number and size of facilities sufficient to ensure that a reader cannot reasonably infer sensitive data regarding a particular company or facility.
- Special attention is given to safeguarding confidential data associated with large facilities whose data may be readily recognizable if aggregated only with small facilities in a given region.

If you have any questions regarding the handling of your confidential data, please email FacIT@calrecycle.ca.gov for more information.

Facility Information Toolbox (FacIT)

Add a New Facility

FacIT tools cannot be complete and accurate unless all facilities in California are listed in the inventory. This page shows you how to get started in adding a new facility to the list.

- How to Add a New Facility:
- Please email information about your facility and your contact information to FacIT@calrecycle.ca.gov and we will create a new file for your facility.
- We will reply to your email with further instructions on how to create a CalRecycle WebPass so you can view and edit your information.
- The operator can then use the WebPass and a chosen password on the FacIT operator log on page to access their own facility data on the secure data server.
- Thereafter, a facility operator can use the password at any time to enter, view or edit their own facility data.

California Department of Resources Recycling and Recovery

FacIT Conversion Table 1 - Material Type Equivalency Factors

Material Name	Quantity 1	In Unit 1	Equals Quantity 2	In Unit 2
Mixed Solid Waste (Uncompacted)	0.0005	Tons	1	Pounds
Mixed Solid Waste (Uncompacted)	0.217590909	Tons	1	Cubic Yards
Mixed Solid Waste (Compacted in-place in a landfill)	0.75	Tons	1	Cubic Yards
Mixed Recyclables	0.0005	Tons	1	Pounds
Mixed Recyclables	0.100547778	Tons	1	Cubic Yards
Construction and Demolition				
Asphalt Paving & Roofing	0.0005	Tons	1	Pounds
Asphalt Paving & Roofing	0.594075	Tons	1	Cubic Yards
Concrete	0.0005	Tons	1	Pounds
Concrete	0.9984375	Tons	1	Cubic Yards
Gypsum Board	0.0005	Tons	1	Pounds
Gypsum Board	0.234291667	Tons	1	Cubic Yards
Lumber	0.0005	Tons	1	Pounds
Lumber	0.138775	Tons	1	Cubic Yards
Mixed C&D	0.0005	Tons	1	Pounds
Mixed C&D	0.451138889	Tons	1	Cubic Yards
Other Inerts	0.0005	Tons	1	Pounds
Other Inerts	0.62	Tons	1	Cubic Yards
Electronics				
Electronics	0.0005	Tons	1	Pounds

Material Name	Quantity 1	In Unit 1	Equals Quantity 2	In Unit 2
Electronics	0.1715625	Tons	1	Cubic Yards
Glass				
Glass Bottles and Containers	0.0005	Tons	1	Pounds
Glass Bottles and Containers	0.34625	Tons	1	Cubic Yards
Other Glass	0.0005	Tons	1	Pounds
Other Glass	0.5	Tons	1	Cubic Yards
Household Hazardous Waste/Used Oil				
Other Household Hazardous Waste	0.00132086	Tons	1	Liters
Other Household Hazardous Waste	0.005	Tons	1	Gallons
Other Household Hazardous Waste	0.00125	Tons	1	Quarts
Other Household Hazardous Waste	0.7407625	Tons	1	Cubic Yards
Other Household Hazardous Waste	0.0005	Tons	1	Pounds
Used Oil	0.131147541	Gallons	1	Pounds
Used Oil	0.2641721	Gallons	1	Liters
Used Oil	1	Gallons	1	Gallons
Used Oil	0.0078125	Gallons	1	Ounces
Used Oil	0.25	Gallons	1	Quarts
Used Oil	201.974	Gallons	1	Cubic Yards
Metals				
Aluminum Cans	0.0005	Tons	1	Pounds
Aluminum Cans	0.032375	Tons	1	Cubic Yards
Mixed Metal	0.0005	Tons	1	Pounds
Mixed Metal	0.049166667	Tons	1	Cubic Yards

Material Name	Quantity 1	In Unit 1	Equals Quantity 2	In Unit 2
Tin/Steel Cans	0.0005	Tons	1	Pounds
Tin/Steel Cans	0.075	Tons	1	Cubic Yards
Other Ferrous Metals	0.0005	Tons	1	Pounds
Other Ferrous Metals	0.210361111	Tons	1	Cubic Yards
Other Nonferrous	0.0005	Tons	1	Pounds
Other Nonferrous	0.1	Tons	1	Cubic Yards
Organics				
Food	0.0005	Tons	1	Pounds
Food	0.5615	Tons	1	Cubic Yards
Green Waste	0.0005	Tons	1	Pounds
Green Waste	0.181542857	Tons	1	Cubic Yards
Manures	0.0005	Tons	1	Pounds
Manures	0.54	Tons	1	Cubic Yards
Man-made Organics	0.0005	Tons	1	Pounds
Man-Made Organics	0.096072917	Tons	1	Cubic Yards
Mixed Compostable Organics	0.0005	Tons	1	Pounds
Mixed Compostable Organics	0.386287302	Tons	1	Cubic Yards
Paper				
Office Papers	0.0005	Tons	1	Pounds
Office Papers	0.1947	Tons	1	Cubic Yards
Old Corrugated Containers Related Grades	0.0005	Tons	1	Pounds
Old Corrugated Containers Related Grades	0.0523	Tons	1	Cubic Yards
Old Newspaper Related Grades	0.0005	Tons	1	Pounds

Material Name	Quantity 1	In Unit 1	Equals Quantity 2	In Unit 2
Old Newspaper Related Grades	0.2353	Tons	1	Cubic Yards
Other and Mixed Paper	0.0005	Tons	1	Pounds
Other and Mixed Paper	0.1465	Tons	1	Cubic Yards
Plastic				
HDPE Containers	0.0005	Tons	1	Pounds
HDPE Containers	0.0135	Tons	1	Cubic Yards
PET Containers	0.0005	Tons	1	Pounds
PET Containers	0.017395833	Tons	1	Cubic Yards
Plastic Film Materials	0.0005	Tons	1	Pounds
Plastic Film Materials	0.01203125	Tons	1	Cubic Yards
Other Plastics	0.0005	Tons	1	Pounds
Other Plastics	0.0200625	Tons	1	Cubic Yards
Other				
Intermediate Product	0.0005	Tons	1	Pounds
Finished products	0.0005	Tons	1	Pounds
Other Special Wastes	0.0005	Tons	1	Pounds
Other Special Wastes	0.346666667	Tons	1	Cubic Yards
Residue	0.0005	Tons	1	Pounds
Residue	0.4995	Tons	1	Cubic Yards
Tires	0.0005	Tons	1	Pounds
Tires	0.01125	Tons	1	Tires
Tires	0.24	Tons	1	Cubic Yards

California Department of Resources Recycling and Recovery

FacIT Conversion Table 2 - Material Type Densities

Material Group	Material	Density (Tons/Cubic Yard)
Beverage Containers	Milk and Juice cartons/boxes, coated	0.03
	Water bottles	0.02
C&D	Bricks	0.81
	Clean Dimensional Lumber	0.14
	Clean Engineered Wood	0.15
	Wood Pallets	0.14
	Painted Wood	0.13
	Treated Wood	0.13
	Concrete	0.86
	Reinforced Concrete	1.13
	Asphalt Paving	0.74
	Other Aggregates	1.11
	Clean Unpainted Gypsum Board	0.23
	Painted Gypsum Board	0.24
	Composition Shingles	0.67
	Other Roofing	0.37
	Plastic C&D Materials	0.02
Glass	Recyclable Glass Bottles and Jars	0.35

Material Group	Material	Density (Tons/Cubic Yard)
	Flat Glass	0.70
	Other Glass	0.30
HHW	Fluorescent Lights/Ballasts	0.30
	Latex Paint	0.92
	Oil Paint	0.92
	Plant/Organism/Pest Control/Growth	0.84
	Used Oil/Filters	0.75
	Other Automotive Fluids	0.75
	Mercury-Containing Items	0.84
	Sharps and Infectious Waste	0.84
	Ash, Sludge, & Other Industrial Processed Wastes	0.50
	Sewage Solids	0.47
	Other HHW	0.84
Inorganics	Ceramics/Porcelain	0.43
	Other C&D	0.22
	Televisions	0.19
	Computer Monitors	0.11
	Computer Equipment/Peripherals	0.19
	Electronic Equipment	0.19

Material Group	Material	Density (Tons/Cubic Yard)
	White Goods—refrigerated	0.17
	White Goods—Not Refrigerated	0.17
	Lead-Acid Batteries	0.07
	Other Household Batteries	1.10
	Tires	0.24
	Household Bulky Items	0.07
Metals	Aluminum Beverage Containers	0.03
	Other Aluminum	0.03
	HVAC Ducting	0.02
	Ferrous containers (tin cans)	0.08
	Other Ferrous	0.28
	Other Non-Ferrous	0.10
	Other Metal	0.09
Organics	Yard Waste—Compostable	0.19
	Yard Waste—Woody	0.17
	Food Scraps	0.56
	Bottom Fines and Dirt	0.74
	Diapers	0.11
	Other Organic	0.31
Paper	Newsprint	0.24

Material Group	Material	Density (Tons/Cubic Yard)
	High Grade Office Paper	0.19
	Magazines/Catalogs	0.29
	Uncoated OCC/Kraft	0.05
	Boxboard	0.01
	Mixed Paper - Recyclable	0.22
	Compostable Paper	0.03
	Other Paper	0.18
Plastics	#1 PET Bottles/Jars	0.02
	#1 Other PET Containers & Packaging	0.02
	#2 HDPE Bottles/Jars	0.01
	#2 HDPE Bottles/Jars—Color	0.01
	#2 Other HDPE Containers & Packaging	0.01
	#6 Expanded Polystyrene Packaging (EPS)	0.01
	#3-#7 Other—ALL	0.03
	Other Rigid Plastic Products	0.02
	Grocery & Merchandise Bags	0.01
	Trash Bags	0.01

Material Group	Material	Density (Tons/Cubic Yard)
	Commercial & Industrial Film	0.01
	Other Film	0.01
	Remainder/ Composite Plastic	0.03
Textiles	Carpet	0.13
	Carpet Padding	0.03
	Clothing	0.10
	Other Textiles	0.12

California Integrated Waste Management Board
Infrastructure Information Project

User Needs Assessment Report

June 1, 2009

Executive Summary

An essential part of the California Integrated Waste Management Board's (CIWMB or Board) Recycling and Waste Management Infrastructure Project (Infrastructure Project) is the solicitation of feedback from interested parties. Outreach efforts included developing a project information website that incorporated an on-line survey, conducting targeted telephone surveys, convening a Technical Advisory Committee, and meeting with CIWMB staff. The results of this intense listening effort are detailed in this report. A complete summary of stakeholder feedback is included in the body of this report. Some of the key points raised by stakeholders are summarized below.

- Stakeholders strongly support the projects goals and the project vision.
- More than 50 percent of survey respondents rated as "very important" the goals of improving the CIWMB's infrastructure inventory information system, launching a map based inventory webpage of facilities, and establishing a system to regularly update the infrastructure inventory.
- A slightly smaller percentage of survey respondents, 37 percent, indicated that developing a model to estimate future waste generation and facility needs was "very important".
- While there is some interest in the project providing certain market and pricing information, keeping this type of information current on the project website is beyond the project's scope, but the website should be designed to accommodate links to market and pricing information.
- The project should address capacity issues by identifying the "permitted" capacity of facilities where available, identifying best available capacity information for un-permitted facilities, and the project should attempt to identify the current rate of capacity utilization through research and surveys.
- The project should allow facilities to report more than one activity being conducted at an individual location (i.e., both recycling and solid waste transfer can be conducted at one facility). Facility categories used in the inventory should include "Emerging Technology Facilities" to identify new types of waste management facilities like anaerobic digestion.
- The project should initially focus on collecting and presenting basic facility information assuring that a comprehensive list of recycling and waste management facilities in the state is compiled.
- To protect sensitive information, confidentiality concerns need to be carefully addressed and the projects confidentiality policy must be strictly adhered to.
- All data fields should have data-tags indicating when information was last updated.

- The infrastructure inventory information system should present information to users through a map allowing users to drill-down to find more facility details.
- The principal units for aggregating information should be at the county-level, if this can presented without compromising confidential information. Where possible, users should be able to create their own regions of contiguous counties.
- The project should gather basic information on the amount of material that flows from facility type to facility type to the extent such information is provided by owner/operators or third party sources. Material flows should be considered on a statewide or regional aggregate basis because individual facilities regularly and rapidly change where materials are sent to or received from.
- Data gathering should begin with known data sources, making use of trade groups and industry sources where appropriate. Local governments and Local Enforcement Agencies will be valuable sources of information, too. The initial data gathering should focus on limited information looking to build a foundation for future data gathering efforts. Certain information may need to be extrapolated to fill information gaps.
- As part of the data gathering effort, facility owner/operators should be asked to update/verify inventory information by logging on to a secure CIWMB website.
- The model should use current capacity and waste generation information to generally predict future capacity shortfalls. As the model is developed, a natural result of the analysis will be the determination of the variables that significantly affect waste generation. The model should accommodate county and regional analysis if possible, so that users may assess areas where certain facilities may be needed in the future. Market forces will determine where facilities are actually built in the future.
- General support was expressed for the model to have a limited public interface, with the CIWMB maintaining control of the model with expanded capabilities.
- In general, support was expressed for the infrastructure inventory information to be updated once each year. In the future, continuous updating through self reporting or links to other CIWMB databases may be possible.

Introduction

The California Integrated Waste Management Board (CIWMB or Board) contracted with R. W. Beck, Inc. (R. W. Beck) to conduct the Recycling and Waste Management Infrastructure Project (Infrastructure Project). The project aims to provide, by May 2010, a centralized webpage within the Board's existing website that contains information on California recycling and solid waste management facilities. The Infrastructure Project will include developing a comprehensive inventory of recycling and solid waste management facilities and a model that will predict infrastructure capacity gaps under different future scenarios. A guiding principle is that the project should be driven by the needs of stakeholders, including private sector waste management firms, local waste management agencies and CIWMB staff. This paper summarizes

the key findings from an ambitious stakeholder engagement effort designed to satisfy this principle.

Using Board direction and the request for proposal document as guides, CIWMB and R. W. Beck staff conducted preliminary research on five key issues:

- The project goals;
- Targeted types of information and how to present it;
- Approach to gathering the information;
- Development of a model for projecting capacity gaps; and
- Options for updating and maintaining the system

The project team then prepared a Project Overview and Vision (project vision). This short paper was posted to a public website (http://www.ciwmb.ca.gov/Infrastructure/Project/) along with links to more detailed research results, providing a preliminary vision for each aspect of the project. A copy of the Project Vision is provided for easy reference in Appendix 1.

To help guide the project, a Technical Advisory Committee (TAC) comprised of representatives of private sector recycling and waste management firms, public sector recycling and waste management agencies, manufacturers that use recycled content, advocacy groups, and other interested parties was formed. The TAC provided significant input to the project team during the user needs assessment. A list of TAC members is presented in Appendix 2.

This stakeholder needs assessment report is based on a broad range of feedback on the project vision obtained through three methods:

Project website and on-line survey – The project website provided a link to an online survey that was accessible to the public from February 2 to March 15, 2009. More than 11,000 e-mail notices were sent to stakeholders encouraging them to take the survey, resulting in 197 completed surveys. Top respondent groups were: private sector facility owner operators (25 percent of respondents), local government (18 percent) and state government (17 percent). A complete presentation of the survey's quantitative results is provided in Appendix 3.

Individual interviews – Individual interviews were conducted with 28 individuals including TAC members, a sampling of on-line survey respondents, and others representing significant groups. Interviewers first reviewed the project vision and then asked a series of questions about the key issues above. A list of interviewees is presented in Appendix 4.

Stakeholder work sessions – R. W. Beck facilitated three work sessions where individuals were encouraged to provide input into the Infrastructure Project process. The three groups were:

- CIWMB Executive Management staff
- CIWMB Staff and Managers
- The Technical Advisory Committee

All told, substantive feedback was received from more than 200 individuals representing the main stakeholder groups with an interest in the project. The following sections summarize the ideas that appeared to be most prevalent and most on-point for developing final products that

will best serve the needs of most of the users of the final Infrastructure Project. No attempt to comprehensively list every comment is made. The needs results will be further evaluated by the Contractor and Board staff to update the project Vision Paper and determine the infrastructure factors and characteristics that can be incorporated into the data collection, modeling and display phases of the project.

Project Goals

Stakeholders were asked to respond to one broad issue to determine their views on the project goals, described below.

Issue: Is the project needed and why?

Initial approach: The project's goals are presented in the project vision and involve: compiling information and developing CIWMB webpages that provide easy access to recycling and waste management infrastructure information, developing a model to help project future disposal generation, and recycling and waste management capacity shortfalls (but not future waste management capacity additions) under a range of scenarios, and creating a system where this information is kept updated.

Discussion: In general stakeholders expressed broad support for the goals presented for the project. A few comments, mainly from private sector interests, indicated a desire for the project to provide a range of market related information (e.g., maintaining constantly updated materials pricing information and market trend information) that is beyond the scope of the project. Survey respondents strongly supported several of the project's goals: 52 percent of respondents rated improving the CIWMB's infrastructure information systems as "very important" and 23 percent rated it "somewhat important," 52 percent rated launching a map-based inventory webpage of facilities as "very important" and 26 percent rated it "somewhat important," and 55 percent rated establishing a system to update the information as "very important" and 25 rated it "somewhat important." A smaller percentage, 37 percent, of respondents indicated that developing a model to estimate future waste generation and facility needs was "very important," with 23 percent rating it as "somewhat important," and 20 percent rating it "neutral/no opinion." This relatively lower level of support may indicate that fewer respondents believe the model will be directly useful to them than the infrastructure inventory. Alternatively, the lower overall support for model development may be due to the fact that it is relatively more complex and difficult to understand than the other project goals.

Significant comments:

<u>Website must contain accurate data and be kept up to date.</u> Numerous comments were received from stakeholders indicating that for the website to be useful to the public it must have accurate and up to date information. Commenters expressed concern that certain existing recycling and waste management information websites contain old, or a mix of new and old, information and that finding information is often challenging. To address this confusion, several commenters suggested having "tags" on all data indicating when an item was updated and by whom with some indication of how accurate different data points are.

Desire for certain market and pricing information. Several commenters indicated a desire for the Infrastructure Project to contain real-time information on prices and other market information. The level of effort to support maintaining a marketing database appears to be beyond the scope of this project. During the work sessions, it was discussed that prices can change quickly and the challenges of maintaining updated pricing information could be contradictory to the goal of assuring accurate information on the website.

Integrating the project into CIWMB and local information management efforts will help ensure the project supports California recycling. It was suggested that by making certain information available to market participants, the project website will help promote recycling in the state. Additionally, several commenters indicted that if local government websites were linked to the Infrastructure Project website it could promote regional recycling while reducing the demand on local government to answer recycling inquiries. Some suggested that the system should be constructed to allow and encourage local governments to use the site as a platform for gathering and managing data on their local facilities.

Capacity of processing facilities is a significant issue to consider, and it can be affected by market conditions. Capacity was raised as an issue to consider in the TAC meeting and the CIWMB work sessions. There are some challenges in managing this issue. Capacity for disposal facilities is set by permit, and can be increased with permit modifications. However, maximum capacity is not always used. A facility's capacity can adjust to changing market conditions. Three commenters expressed complementary concerns that available capacity or lack of capacity should not be used to block the development of new facilities, compel jurisdictions with capacity to accept waste from external sources, or as an excuse not to implement new diversion programs. Several comments were made that the optimum goal for the Infrastructure Project should be to assess and report the current recycling and waste management capacity in the state.

Take-away: (1) The project goals appear to be supported by project stakeholders. (2) It is important that accurate information be presented in a user-friendly system. (3) A clear understanding of "capacity issues" must be provided by system developers to its users. Infrastructure capacity within the scope of this project will focus on two types of capacity; permitted capacity (as indicated in permits) and identified capacity for unpermitted facilities, as well as the current rate of utility of that capacity. For processing facilities current capacity means the annual amount of material that a facility can process under existing facility conditions. For final disposal facilities, current capacity means the quantity of material a facility can accept from the current time until the facility must close because it is full as indicated by its operating permit. Capacity information obtained by project team data gathering will be listed in the infrastructure inventory. (4) Certain stakeholders expressed their desire for the project to perform tasks that are beyond what can feasibly be conducted within the time and budget constraints of the project. For example, the project will not be able to incorporate dynamic market and pricing information, but the project website will include internet links to sites that can provide this information.

Targeted Types of Infrastructure Information

The information targeted by the Infrastructure Project includes the types of facilities, types of materials, type of data gathered and reported, and the geographical boundaries used to aggregate and report the results. Feedback on these issues is summarized below.

Issue: How should facilities be categorized and defined?

Initial approach: Preliminary facility categories were developed generally following the existing definitions for CIWMB regulated facilities and the types of recycling and recycled content manufacturing facilities identified in California Recycling Economic Impact studies.

Discussion: In general commenters were supportive of the facility types outlined in the project vision. In several interviews and during the TAC and CIWMB Executive Management work sessions, there was significant discussion about the facility definitions related to conversion technologies, emerging technologies, and energy recovery from waste. Survey responses about the usefulness of the proposed facility categories was 30 percent "very useful," 37 percent "somewhat useful," 17 percent "neutral/no opinion," and 5 percent "not useful."

Significant comments:

Conversion technologies and other future waste management options need to be added to the facilities list, and the definitions must remain flexible because these are evolving issues. During the TAC work session and in several interviews, the inclusion of an "emerging technologies" category under the composting facility heading was suggested to accommodate new technologies such as anaerobic digestion. This sentiment was countered with the idea that that outside forces (e.g., Air Board regulations) may affect which technologies get implemented in the future. Stakeholders were also concerned that the choice of how to classify certain controversial technologies could pose the appearance of a policy bias, since these issues are currently under close debate in the legislature.

Avoid rigid facility categories and allow more than one activity to be associated with an individual facility (e.g., MRF and transfer station, or landfill and recycling facility). At the Executive Management work session it was discussed that the processes conducted at a facility may change over time, and the project should not try to narrowly define facilities. At the TAC work session it was discussed that one facility may conduct several different types of operations. One approach mentioned several times is to list the inputs, outputs and processing approaches used at a facility, avoiding to the extent possible arbitrarily assigning any facility to just one category. The project vision includes allowing various activities to be conducted at one location.

A Composting Facility should be called an Organics Materials Management Facility. It was suggested by CIWMB Executive Management that the facility type Organics Processing Facility be used to be consistent with emerging industry trends.

Exports through ports. Two commenters raised issues related to exports that move through the ports to China and other overseas markets, and that the Infrastructure Project should capture this information in some way.

Take-away: (1) Facility types will be updated in the work plan to accommodate emerging technologies. (2) An "Emerging Facility" category will be included in the list of facility types to

accommodate new conversion technologies. Emerging Facilities will be indicated as a separate type of facility differentiated from Conversion Technology Facilities. (3) Facilities types will need to accommodate more than one activity. (4) Need to capture facilities supporting export markets as a potential facility type.

Issue: What material categories should be used?

Initial approach: The preliminary material categories were developed following the CIWMB's existing "category" system. The definitions are similar to those used in California waste composition studies.

Discussion: Very few comments were received concerning the proposed material categories. A few minor changes to the material definitions will need to be considered. Survey responses about the usefulness of the material categories was 30 percent "very useful," 36 percent "somewhat useful," 15 percent "neutral/no opinion," and 5 percent "not useful."

Significant comments:

Allow facilities to define material inputs and outputs on their own terms. Several commenters suggested keeping the site simple by allowing facilities to define their own material categories. Standardized categories would still be needed for modeling and aggregating data, however.

Other materials to consider. In the on-line survey individual commenters asked if items not included in the project vision such as biosolids, spent grease, grease-trap waste, household hazardous waste (HHW) and pharmaceuticals should be included as materials in the infrastructure inventory.

Use industry acknowledged categories where appropriate. It was suggested by project team members that market definitions should be used where appropriate to define the materials type. For example, paper recyclers will better understand the paper category definitions if the Paper Stock Institute (PSI) paper grade numbers are included with the project paper definitions.

Take-away: (1) With the limited interest in biosolids, spent grease, grease-trap waste, and similar waste these materials should not be included in the initial infrastructure inventory but the overall system should be designed to allow additional categories as needed in the future. (2) Paper definitions will be updated to include PSI numbers where feasible and possible industry grading systems for other materials will be researched.

Issue: What information should be gathered and reported for each facility?

Initial approach: The vision for data collection was to target basic facility identification, location, contact, material handling (input/output), and capacity information. At the inception of the project, there was an understanding that sensitive information may be challenging to obtain, and likely may not be publicly reported at the facility level.

Discussion: A significant amount of discussion during the work sessions focused on this topic, as did survey and interview commenters. In response to the survey, the information most respondents indicated should be kept confidential was: types of sources of inputs to facilities (24 percent), current and future facility capacity (21 percent), point of origin of facility inputs (21

percent), theoretical maximum capacity of facility (20 percent), and annual facility throughput by material type (20 percent).

Significant comments:

Begin with readily available public information. A wide range of comments was received concerning the facility information that stakeholders would like to see for facilities in the infrastructure inventory. From all input sources there was acknowledgement that simply making public information (e.g., facility, location, contact, materials managed, etc.) easily available in one location would make the Infrastructure Project valuable. Commenters noted that it would be valuable to have "tags" indicating when a field was last updated.

The Infrastructure Project may need to gather and report different information for permitted and un-permitted facilities. Many stakeholders put forward the idea that permitted facilities are compelled to report certain information to the state that un-permitted facilities are not. Although, there are facilities that have permits issued by agencies other than the CIWMB and information on these facilities may be obtained through other sources. Many private facility operators expressed concerns that it would be difficult, if not impossible for the project team to obtain certain sensitive information for un-permitted facilities because of confidentiality concerns.

Other easily obtainable information. Several commenters offered suggestions for facility information that would be valuable and that would raise few confidentiality concerns.

- If a facility is open to the public or if it limits deliveries to select customers
- The form that a facility accepts incoming material
- Posted gate rates
- Expected life of disposal facilities

Additional information that may be challenging to obtain, but could be valuable. Several comments were received from all stakeholder groups about more sensitive information that they would like to know about facilities.

- Diversion rates for individual facilities
- Quantities and types of material inputs and outputs
- Facility capacity

Start by focusing on limited amounts of the most critical data, but build the system with an eye towards expansion and flexibility. One theme that emerged several times is that the CIWMB should build this infrastructure information system initially to focus only on the most critical information (i.e., an inventory of facilities, information on inputs and outputs and capacity), with other readily available and easy-to-include information also provided. However, many said the system should allow expansion in the future, and possibly be built to encourage others to add data as appropriate.

Confidentiality concerns. A number of facility owner/operators expressed a reluctance to provide what they consider sensitive information. At all three work sessions it was discussed that the importance of confidentiality concerns should not be underestimated in the data

gathering process, and this will affect the information that can be presented for facilities. This issue is discussed further in the data gathering section of this report.

Take-away: 1) The project should focus on collecting and presenting basic information about each facility. 2) Confidentiality concerns must be considered in reporting facility information. 3) Data fields should have tags indicating when they were last updated. 4) The inventory database should start simply with the capability to add more data over time.

Issue: How should inventory information be presented?

Initial approach: The vision is to present information via a web-based map showing facility locations with more detailed information available for each facility available on the site.

Discussion: Comments were received from all sources concerning how stakeholders would like to have data reported. Responses to survey questions about using maps to present the location of facilities categories by type were 54 percent "very useful" and 24 percent "somewhat useful." Responses to survey questions about presenting basic non-confidential facility information such as address, contact information, types of material accepted, and types of products output were 57 percent "very useful" and 25 percent "somewhat useful."

Significant comments:

Data should be presented as a map, with searchable feature. In interviews, most stakeholders indicated that a map that would allow "clicking-through" to more detailed facility information was the preferred method of viewing facility inventory information. Commentors requested being able to select for facility type, materials handled, etc. Interviewees and survey respondents expressed a desire to be able to find the nearest facility of each type by city name or zip code.

Tables and download of data. Several interviewees expressed an interest in being able to drill-down to find out more information about an area or facility through queries and drop-down menus. A couple of interviewees requested that material be easily downloaded from the site, and the Bureau of Labor Statistics Consumer Price Index site was offered as an example.

Keep it simple. General comments received from the on-line survey and in the work sessions indicated an overall desire from stakeholders that the information retrieval system should be kept simple and easy to use.

Counties and self-selected regions. In the surveys and in the work sessions, stakeholders expressed a desire to be able to select their county and neighboring counties to access information about recycling and waste management facilities. Additional comments were received from stakeholders indicating their desire for information to be made available by county where possible.

Other regulatory agency boundaries. In the work sessions and in interviews, stakeholders indicated that it could be valuable to know the Air Board or Water Board district where a facility is located.

Major transportation corridors and transportation obstacles should be shown on map. Three interviewees offered the suggestion that transportation corridors link many counties. In other cases, although counties are contiguous, physical barrier, like mountains, keep them from

cooperating on waste management issues. For this reason, transportation corridors, travel times and physical barriers are important map features.

Take-away: 1) Present facility information initially as a map. 2) Allow users to "drill down" and find more details about facilities. 3) Data tables should be easily exportable. 4) Show transportation corridors and obstacles.

Issue: How should the information be aggregated by region?

Initial approach: Certain model output information would need to be aggregated by region to protect sensitive facility data.

Discussion: In interviews and work sessions, stakeholders indicated their understanding of the need to aggregate certain data outputs to protect sensitive issues. Several suggestions were offered for how data could be aggregated and best meet user needs. Survey responses concerning aggregating information by geographic region were rated as "very useful" by 28 percent of respondents, "somewhat useful" by 34 percent, "neutral/no opinion" by 17 percent, and "not useful" by 6 percent. A question asking users to rate the web site feature of aggregating information for facility capacity and throughput so that users could not infer these statistics about any one facility were rated "very useful" by 25 percent of respondents, "somewhat useful" by 27 percent, "neutral, no opinion" by 24 percent, and "not useful" by 10 percent.

Significant comments:

Do not use regions that don't make sense in terms of how materials flow. Specifically, several commenters said using the CIWMB's waste characterization study regions was not a good idea because they have no relation to how waste or recyclables actually move. Because most regions are open to this critique, the notion of avoiding the definition of arbitrary regions was suggested.

Consider transportation corridors and logical linkages. As described above, interviewees expressed a concern that mountains can present obstacles for the movement of goods, so information should be aggregates in a manner that accounts for transportation. Interviewees from rural areas stated their request that if aggregation is necessary, that actual linkages be considered, rather than simple geographical proximity.

Think on the county level. Many comments from various sources expressed a desire for information to be reported at the county level. Interviewees from more urban areas expressed an interest in being able to consider sub-sections of the county in dense metro areas. Several commenters expressed a desire to be able to create their own regional groupings by selecting a number of contiguous counties off of a map.

Take-away: (1) Principal unit of organization for aggregating information should be counties, if this can be presented without exposing confidential information. (2) If possible, allow users to create their own regions of contiguous counties. 3) If there is a need to force counties into regions, look for logical linkages like transportation corridors.

What information is most important to be gathered and analyzed?

Initial approach: The initial project goals focus on facilities and the materials they manage. A hierarchy of data gathering and analysis that the Infrastructure Project could accomplish that was discussed at the work session is presented below.

Discussion: During the work session, and during a few interviews, certain stretch goals for the project were put forward by stakeholders. During the work sessions various ideas about what the Infrastructure Project could accomplish were discussed.

Significant comments:

The following hierarchy for data gathering was developed during the work sessions.

First, the groups seemed to be in agreement that the main project goal is to facilitate policy evaluation and development. It will help in many other ways too (e.g., local planning, etc.) but these are ancillary goals.

Second, at different work sessions various groups expressed desires for the project to include several different types of information, although they acknowledged that including all of the information would not be feasible. The top feasible information goals expressed seemed to be as described below:

1. An inventory of facilities, presented clearly in one place on a new web site.
2. All readily available or accessible, public information should be included to the extent possible. It is important to consider CIWMB-permitted and non CIWMB-permitted facilities separately:
    a. For permitted facilities, the system should include throughput, permitted and design capacity, and potentially other information from CIWMB, LEAs and other sources
    b. For non-regulated facilities, the system might have to be much more modest and focus on gathering available information
    c. Capacity and throughput information will be particularly challenging to obtain from reliable, accurate sources
3. Secondary information goals that may not be feasible, or that would require tradeoffs with other activities/goals to achieve under the project:
    a. An analysis of infrastructure trends including information on drivers of new infrastructure (e.g., AB 32, local planning, state legislation and policies) and impediments to new infrastructure (e.g., regional air quality regulations, other regulations, etc.). Most in the stakeholder groups acknowledged that projecting capacity expansions at specific facilities is probably not reasonable.
    b. Operational details about facilities. This could include the specific type of landfill gas recovery systems or types of composting systems at a facility.

c. Life-Cycle analysis information related to shipping and managing waste or recyclables.

d. Market information like specifications, pricing, end-markets for different grades of materials accepted, etc.

Take-away: 1) The project should focus initially on developing a clearly presented inventory of facilities. 2) The project should gather basic information on the amount of material that flows from facility type to facility type to the extent such information is provided by owner/operators or third-party sources. Material flow should be considered statewide or regional aggregate, because individual facilities regularly and rapidly change where materials are sent to or received from. 3) The project has the potential to meet other important goals over time.

Approach to Gathering the Information

The initial project vision was to gather information in a phased approach; first gathering data from existing sources in coordination with existing CIWMB data management, then conducting surveys to fill data gaps. Stakeholder comments focused on two main issues related to data gathering – preparing the list of facilities in the inventory, and gathering more detailed data for each facility.

Issue: What sources are available to identify facilities to include in the inventory?

Initial approach: The initial project vision is to begin the list of facilities using existing CIWMB and external private data sources.

Discussion: During interviews and work session stakeholders provided ideas concerning resources that could assist in developing the facility inventory.

Significant comments:

Local governments and Local Enforcement Agencies (LEAs) can be information sources. In work session and interviews, many suggested that local government waste management officials, and LEAs in particular, could be a source of information about the recycling and waste management facilities in an area. Some suggested that LEAs would have certain information needed on facilities with a solid waste facility permit, and that local government solid waste or recycling staff could be knowledgeable about non-regulated recycling processing and end-use facilities. Individual interviews with local representatives indicated that the information available from local representatives is highly variable. Some local entities have a high level of information accessibility, but others do not have ready access to information needed for the infrastructure inventory.

Other sources of information. Through interviews and work sessions, other sources of information that could assist in compiling the infrastructure inventory were discussed. Local planning agencies may be sources of information including conditional use permits (CUPs) for non-permitted facilities along with the Non-Disposal Facility Element (NDFE) of local

Integrated Waste Management Plans. Also, Los Angeles County is conducting a data collection effort similar to the Infrastructure Project and could be an important source of local information.

Take-away: 1) Need to follow-up with local contacts as sources of information to identify facilities in addition to using already identified sources with the understanding that information availability will likely be highly variable.

Issue: What is the best way to gather targeted information on each facility?

Initial approach: The initial vision is to begin compiling information from existing CIWMB and private data sources, and then conduct surveys. The project team believes it may be possible to have facility owner/operators input and update information through a secure CIWMB webpage.

Discussion: During interviews and the work sessions, ideas about the challenges of data gathering and ways to overcome them were discussed. In the on-line survey, 62 percent of respondents indicated that information should be updated through a secure, on-line form on the CIWMB website, 15 percent responded that "it doesn't matter to me," 6 percent indicated that information should be provided by fax, phone, or e-mail to the CIWMB, and 3 percent indicated that information should be provided via fax, phone, or e-mail to a consultant contractually bound to abide by a confidentiality policy.

Significant comments:

Confidentiality policy is a must. In interviews and the TAC work session, it was discussed that the project team may need to make use of the confidentiality policy to get some facilities to provide information.

Certain facilities will be reluctant to provide information. During interviews and work sessions, it was discussed that un-permitted facilities will not provide information for several reasons including: confidentiality concerns, operators do not have the time to respond to information requests, and operators have no legal obligation to reply.

Work through trusted sources. During interviews and the work sessions, it was discussed that if the project team enlists the assistance of large firms and associations, these larger entities may be able to gather and compile information before it is presented to the CIWMB. For example, the CIWMB should start by approaching corporate headquarters of firms that own or operate multiple facilities, and can use trade associations or other organizations wherever possible, to assist in gathering information. In this way facility owner/operators may be assured that their interests are protected. The trusted sources may be able to help craft data gathering questions so that they are more likely to be answered by wary facility operators. Large corporations and trade groups may be able to provide certain sensitive information (e.g., capacity and throughput data) if it is aggregated to protect facilities' confidentiality. Working through a trusted source may require more lead-time in the data gathering process.

Local governments and LEAs can be information sources. As described in the section above, local governments and LEAs were mentioned by a number of commenters as potential sources of information about facilities. In the CIWMB work sessions, it was discussed that it may be

possible to integrate the data collection efforts of LEAs and local governments into the on-going maintenance of the infrastructure inventory.

Use a web based data collection and verification system, but phone interviews will be needed, too. In interviews, many stakeholders indicated a willingness to participate in the data collection effort via the internet, but some facility operators indicated that they would not because they do not have time to respond to an online inquiry. One comment was made that regardless of the collection method, follow-up phone calls will be needed to encourage facilities to provide data and that it will be very important to make sure contact information including e-mail addresses are kept up to date.

Where possible use existing data collection efforts. In the CIWMB work sessions, it was discussed that certain data collection efforts are conducted on a continual basis. With the work on the Infrastructure Project, consideration should be made to allow the Infrastructure Project database to capture data and be updated as other CIWMB databases are updated.

Allow facility operators to report certain information in ranges. Several interviewees reported that operators might be more willing to provide data if it can be provided in ranges. Ranges have the advantage of being less time consuming for the operator to provide (compared to researching exact figures) and they allow information to be presented in a less sensitive manner. A few commenters noted that facility throughput can vary over time, and by reporting in ranges seasonal and annual variations can be smoothed.

Target non-proprietary information with initial data gathering. Several interviewees expressed the opinion that the data collection effort should begin with modest expectations so that a useable infrastructure inventory can be established. Then, as operator gain confidence in the data-gathering regime, they may be willing to provide more information and sensitive information.

Infrastructure Project as marketing tool. Certain interviewees indicated a strong opinion that if the Infrastructure Project website is promoted as vehicle for businesses to get their name out to the public, then facility operators would be more willing to provide information.

Take-away: (1) Begin data collection with known data sources. (2) Make use of trusted sources (e.g., corporate offices and trade groups). (3) Modify existing data collection efforts to gather information, where possible. (4) Work with local governments and LEAs. (5) Use electronic reporting and verification when possible. (6) Allow facilities to report in ranges. (7) Allow facilities to self-report where appropriate. (8) Begin data collection asking for limited information, looking to build a foundation for the future. (9) Regardless of data collection method, follow-up phone calls and surveys will be needed. (10) Data may need to be extrapolated to fill information gaps. (11) While collection efficiency is a goal, time constrains may require simultaneous efforts such as cold calling some facilities.

Model Development

The initial project vision is to develop a model for projecting waste generation in the state and analyzing infrastructure needs under a number of user-defined future scenarios. Survey respondents and interviewees expressed opinions that modeling is less important to the Infrastructure Project than the infrastructure inventory.

Issue: What are the top priority needs/uses for the model?

Initial approach: The vision for the model is to serve as a high-level tool that will support policy analysis by looking a capacity needs and shortfalls.

Discussion: In all feedback forums, stakeholders acknowledge that the model will best serve as a policy analysis tool. Some interviewees expressed opinions that a model can only generally predict the future needs, but that market forces will determine where and when new recycling and waste management facilities are constructed.

Significant comments:

"What-if" scenarios are a good idea. During all three-work sessions, the development of a model as a tool to assist in policy analysis was discussed and supported. Several commenters indicated that a model would be useful if the model could generally indicate where facilities of different types might be needed to meet future recycling requirements.

Model should tie together supply and demand. Several commenters indicated that the model would be useful if it looked at anticipated supply and demand, and then indicated where capacity shortfalls might occur for certain commodities. During interviews and the TAC work session it was heavily stressed by many facility operators that the model must not be used to exactly predict where future capacity is needed or where facilities should be located, because market forces will determine where and what type of new facilities actually are constructed. The model will be able to predict scenarios concerning the amount of material generated and then provide guidance on the general industry capacity needed to manage this material.

The model must allow regional thinking. At the CIWMB work sessions, comments were made that the model could be a tool that local governments can use for cooperative planning. In several interviews and work session the request was made for users to be able to identify individual counties or contiguous counties for modeling outputs.

Important variables. In the TAC work sessions, participants offered several ideas about helpful variables that could be entered into a model including population growth, economic growth, and increased diversion of various materials. The current economic climate points out how important it is to address economic variables. At the CIWMB work sessions, it was discussed that the tool would be more valuable if the users could determine the regional boundaries to consider in modeling, especially for local governments.

Avoid specific planning predictions. In the work sessions and interviews, several comments were made that a model must not attempt to determine where a new facility should be located. Market forces and business decisions with determine exactly where new facilities will be built. The best a model can do is provide a general idea of what kinds of facilities will be needed in the future. During the CIWMB Executive work session it was mentioned that it may be possible to model a decline in waste generation during an economic downturn, but modeling the decline in demand is problematic.

Important limitations on modeling. Several commenters suggested providing capacity and throughput information as data ranges. It was discussed that collecting data in ranges would present challenges for model inputs and for presenting model outputs and collecting data in ranges may significantly limit the ability to predict capacity needs. Several commenters

indicated that models are typically complex and difficult to understand, and they suggested that the model should be designed to produce simple and understandable results.

Model outputs will be constrained by limited inputs. During interviews and the work sessions it was discussed that it will be difficult to gather comprehensive data on current and projected recycling tonnages, so model outputs of this information may need to be presented with qualifying statements.

Take-away: (1) Model should use current capacity and waste generation to generally predict future short falls. (2) The model should be able to accommodate important variables related to changes in diversion caused by policy decision and changes in growth caused by economic conditions. A natural result of the planned analysis of historical waste generation will be the determination of which variables have significant effect on waste generation. (3) The model should accommodate county and regional analysis, if possible. By conducting county and regional analyses, model users should be able to assess areas where facilities may be needed in the future. (4) The effect of collecting data on the modeling effort will need to be considered (e.g., collecting data in ranges will affect how results are output). (5) Model outputs should be kept as simple as possible. (6) Model outputs may need to be presented with qualifying statements.

Issue: Must the full model be accessible to all web site users, or is it more appropriate to designate specific Board Staff a conduit for running the model and assisting in interpreting results?

Initial approach: The initial project vision for the model is for two model interfaces to exist. For general public use, a simplified version with limited inputs and outputs will reside on the project webpage. A second, more detailed version of the model, that may require special skills to operate, will be accessible only to CIWMB staff.

Discussion: In interviews, stakeholders expressed support for having two versions of the model.

Model can be very complicated and results may be misinterpreted. Several interviewees expressed opinions that the model could be very complicated. Model results could be misinterpreted or misrepresented by opponents or proponents of a change to support their position. By having the detailed model reside with the CIWMB, Board staff could assist model users to avoid errors in the presentation of results.

A simplified “public face” is a good idea. Many interviewees expressed support for having a simple version of the model on the project webpage so that interested parties could research the effect of policy changes. Basic questions can be answered easily, while complex problems may require the attention of someone familiar with the model.

Take away: 1) General support was expressed for the idea of having a limited public model interface on the project website and for having the CIWMB maintain control of the model with expanded capabilities.

Updating and Maintaining the Infrastructure Information Webpage

Issue: How often should the information be updated to keep it current in the future?

Initial approach: There is no initial vision for a required frequency of information update.

Discussion: In general survey results and interviews indicate that stakeholders support updating infrastructure inventory information once a year. A few other ideas for updating were put forward during interviews and work sessions. In the on-line survey, 23 percent of respondents indicated that facilities should be allowed to self-report results whenever they choose, 38 percent supported annual surveys, 11 percent supported biennial surveys, and 14 percent selected some other frequency.

Significant comments:

Frequency of update should reflect frequency of change. One commenter stated that the frequency of updating information should be proportional to the changes that are occurring in the policy arena or market environment.

Continuous update. In work session and interviews several individual expressed the idea that it should be possible to link data from multiple CIWMB databases so that updates can occur simultaneously in more than one location. For example, if a new permit is issued for a facility, the information in the Infrastructure project database should be automatically updated.

Continuous self-updating. Some interviewees and 23 percent of survey respondents indicated that the project should allow facilities to update information whenever they choose.

Once a year update. In the work sessions and interviews, there were significant expressions of support for a once a year update of the model. A few commenters did express an opinion for shorter or longer time frames for updating the information.

Take-away: 1) Facility information should be formally updated once each year. 2) If possible, information should be updated continuously through self-reporting or linked CIWMB data sources.

Conclusions and Next Steps

The ideas and comments received from the various stakeholders will be incorporated into a revised version of the project vision and a revised work plan will be developed that will guide the execution of the Infrastructure Project over the next year.

Building from the take-away items listed above, the next steps for the Infrastructure Project team will include:

- Continue the evaluation of known existing sources of information, particularly CIWMB databases and identify which sources will be used in constructing the final inventory

- As data collection methodology is developed, work closely with associations and large corporations to enlist their aid in data gathering, especially addressing confidentiality concerns
- Reach out to local governments and LEAs to gauge their ability to identify facilities and provide facility information
- Concurrent to designing and programming the infrastructure inventory database, conduct pilot data gather efforts to assess different data sources
- Evaluate the CIWMB's current data gathering activities (in cooperation with the Knowledge Integration Branch), with an eye toward integrating current collection activities with the on-going maintenance of the infrastructure inventory.
- How the model will be affected by gathering data in ranges and reporting outputs by county or user defined region will be investigated.

The updated project vision and work plan will be developed in May 2009, and then posted to the project website.

Appendix 1: Vision Paper

California Integrated Waste Management Board
Infrastructure Information Project

Overview and Vision

Draft, December 22, 2008

Introduction

This paper provides a brief overview of the Infrastructure Inventory 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 Information 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
- 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 Information 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.

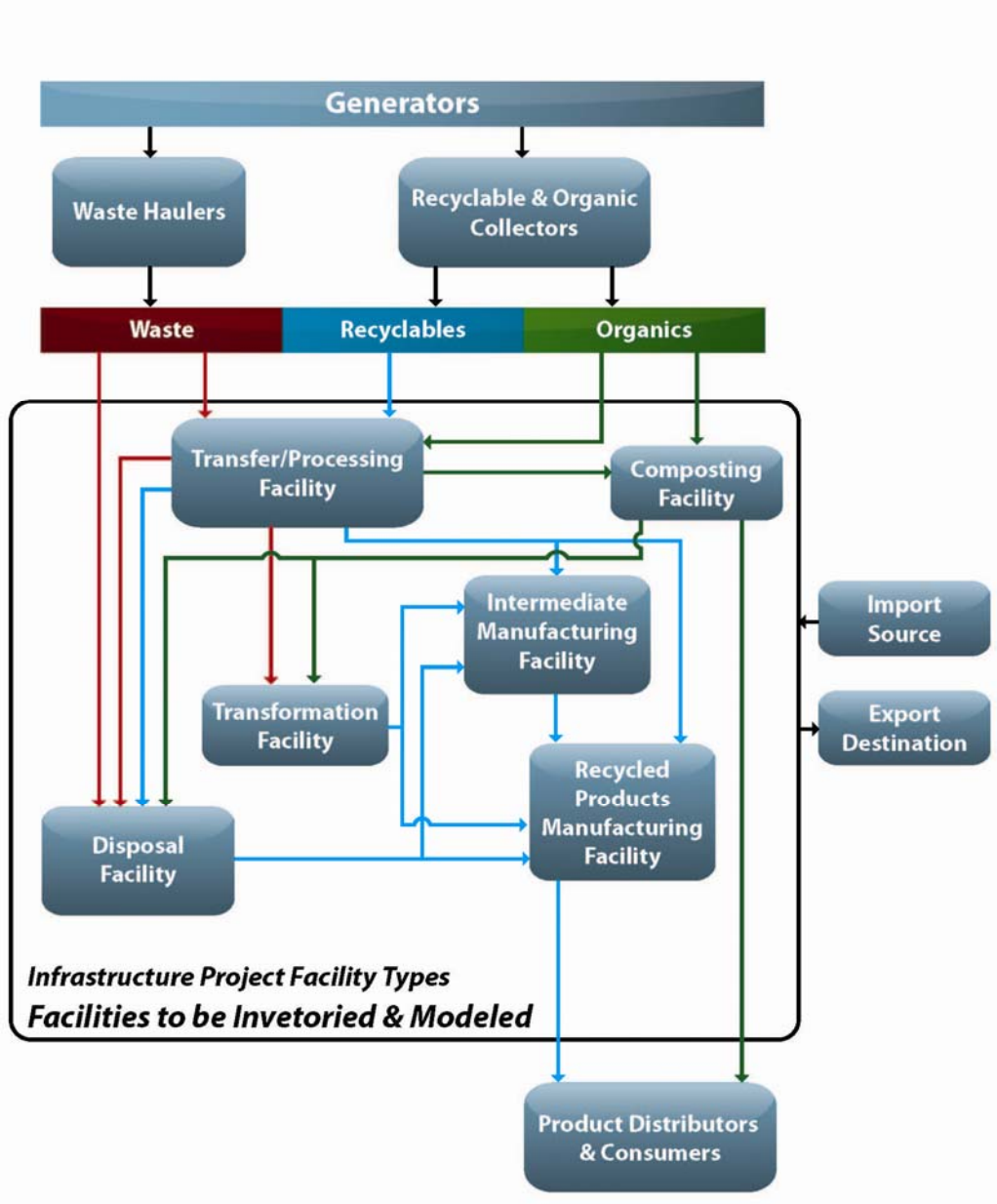


Figure 1. Waste Management and Recycling Flow Chart Identifying Categories of Facilities Covered in the Project

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 that 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.

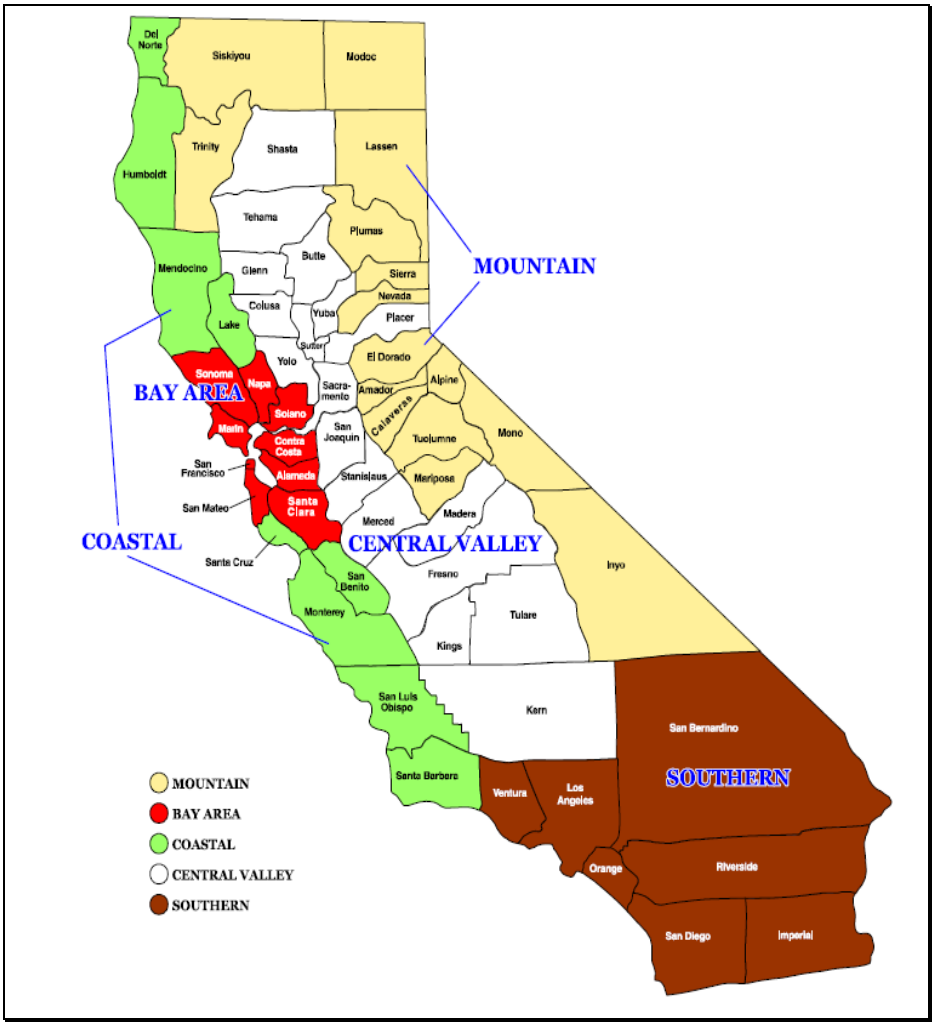


Figure 2. Map of Geographic Regions Used in the Board's Waste Characterization Studies

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 self-reporting capabilities to provide or update data periodically. Corporate offices will be surveyed for companies that operate more than one California facility. 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 Information 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.

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," "best 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.

Conclusions and Next Steps

The Infrastructure Information 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.

Appendix 2: Technical Advisory Committee Members

Name	Company
Jim Fagelson	Newport International
Chuck White	Waste Management
Evan Edgar	Edgar & Assoc, Inc.
Bill O'Grady	Talco Plastics
Larry Sweetser	Regional Council of Rural Counties
Mike Hammer	Waste Management
Marc Madden	Institute of Scrap Recycling, Inc. (ISRI)
Skip Lacaze	City of San Jose
Paul Alva	LA County Public Works
Karen Coca	City of Los Angeles
Nick Lapis	Californians Against Waste
Tim Flanagan	Monterey Regional Waste Management District
George Eowan	CRRC
Yvonne Hunter	Institute for Local Government
Glenn Acosta	LA County San District
Dung Kong	LA County San District

Appendix 3: On-line Survey Results

Number of respondents: 197

1. Which group best describes the stakeholder group you represent?

Option	Answers	Percent
Private Sector ? Owners/Operators of waste management and/or recycling processing facilities	49	24.87%
Private Sector ? Owners/Operators of manufacturing facilities that use recycled feedstock	10	5.08%
Private Sector ? Other	24	12.18%
Government – Local -Owners/Operators of waste management and/or recycling processing facilities	16	8.12%
Government ? Local - Other	36	18.27%
Government ? State/Federal	33	16.75%
Non-profit Sector	12	6.09%
Other	10	5.08%
Not Answered	7	3.55%

2. How do you rate the effectiveness of currently available recycling and waste management infrastructure information?

	Very well. I can almost always find what I need.	Adequately. I can usually find what I need.	Not very well. Key information is missing or hard to obtain.	Not Applicable	Not answered
How well do existing sources of information meet your needs?	8.12%	47.72%	31.47%	8.12%	4.57%
How up-to-date do you find the information on the database you use?	9.14%	44.16%	30.46%	8.12%	8.12%
How do you find the completeness or accuracy of the databases you use?	7.11%	47.72%	29.44%	8.63%	7.11%

3. How important do you believe each goal of the Infrastructure Project is?

	Very important	Somewhat important	Neutral/ no opinion	Not important	Problematic	Not answered
Goal #1: Improve the Waste Board's existing solid waste disposal and diversion infrastructure information system to better meet stakeholder needs	52.28%	22.84%	9.14%	5.08%	0.51%	10.15%
Goal #2: Launch a new map-based web page within the Waste Board's existing web site that provides a centralized, easy-to-access inventory of all identified facilities	51.78%	25.89%	10.66%	2.54%	0%	9.14%
Goal #3: Develop a model that estimates future waste generation quantities and projects the need for new facilities based on assumptions about future diversion rates, population growth, economic activity and other factors	37.06%	23.35%	20.30%	6.09%	3.05%	10.15%
Goal #4: Establish a practical system to update the web page	55.84%	25.38%	5.08%	1.52%	0%	12.18%

4. Rate each feature of the proposed Infrastructure Project

	Problematic	Not Useful	Neutral/ No Opinion	Somewhat Useful	Very Useful	Not Answered
4a. Maps showing the location of all known California waste management and recycling facilities, including recycling markets, categorized by type of facility	1.02%	0.51%	8.63%	24.37%	54.31%	11.17%
4b. Basic non-confidential information on each facility such as address, contact information, types of materials accepted and types of materials/products output	0.00%	0.00%	5.08%	25.38%	56.85%	12.69%
4c. Aggregated information on facility capacity and actual annual tonnages received, reported at the county or multi-county level in a way that does not allow readers to infer statistics on any one particular facility. Example: Estimated total processing capacity for residential curbside recyclables in the nine-county San Francisco Bay Area region	1.52%	9.64%	24.37%	26.90%	25.38%	12.18%
4d. Projections for waste generation by multi-county region for a 20-year period, based on a standardized model that builds upon past Waste Board waste generation projection methodologies	1.52%	10.66%	28.93%	28.93%	18.27%	11.68%

	Problematic	Not Useful	Neutral/ No Opinion	Somewhat Useful	Very Useful	Not Answered
4e. Projections of capacity needs and shortfalls by material and facility type, for multi-county regions, based on assumptions about future diversion rates, population growth, economic activity and other factors. Example: Projections of the need for additional material recovery facilities in the San Francisco Bay Area assuming that residential recovery of select recyclables increases by 30 percent over a five year period	1.52%	10.66%	28.93%	28.93%	18.27%	11.68%

5. How do you rate the usefulness of the facility and material categories?

	Problematic	Not Useful	Neutral/ No Opinion	Somewhat Useful	Very Useful	Not Answered
5a. How do you rate the usefulness of the facility categories?	1.52%	2.54%	17.26%	37.06%	29.44%	12.18%
5b. How do you rate the usefulness of the material categories?	1.52%	4.57%	15.23%	36.04%	29.95%	12.69%

6. The new Infrastructure Information Web Page will draw from data gathered through current Board programs and, where necessary, new surveys, requiring the Board to reallocate budget and staff time. To adequately meet your needs, yet remain cost-effective and efficient, how often should facility information be updated?

Option	Percent
Allow facilities to self-report and update data whenever they choose	23.35%
Annual surveys	37.56%
Biennial surveys (i.e., every other year)	11.17%
Other	14.21%
Not Answered	13.71%

7. Which of the following options for facility owners/operators to provide information do you feel is most appropriate?

Option	Percent
Provide information through a secure, on-line form on the Waste Board's website	61.93%
Provide information via fax, phone, or email to Waste Board staff	5.58%
Provide information via fax, phone, or e-mail to a consultant contractually bound to abide by a confidentiality policy with the Waste Board	2.54%
It doesn't matter to me	15.23%
Other	4.06%
Not Answered	10.66%

8. Check each of the types of information below that you feel should be considered confidential and not publicly released for individual facilities:

Option	Percent
Types of materials accepted by each facility	14.21%
Current and projected annual capacity (maximum quantity of inputs accepted per year)	21.32%
Theoretical maximum capacity (based on owner/operator's assumptions about feasibility)	19.80%
Actual total throughput (total quantity of all material types received in most recent year)	17.26%
Actual throughput in total and by major material type (quantity of each material category received in most recent year)	19.80%
Types of sources by percentage of input (i.e., percent received through municipal contract, private contract, and open market)	24.37%
Point of origin of inputs (listing percent of total input by jurisdiction where waste was generated)	20.81%
Total amount of diversion outputs	13.71%
Amount of diversion outputs by material type	18.78%
Total amount of residuals disposed (for recycling facilities)	19.29%
Location and category of destination facilities for outputs (e.g., amount sent to landfills by county/state or amount of recycled paper sent to paper mills by county/state)	20.30%
Other	16.24%

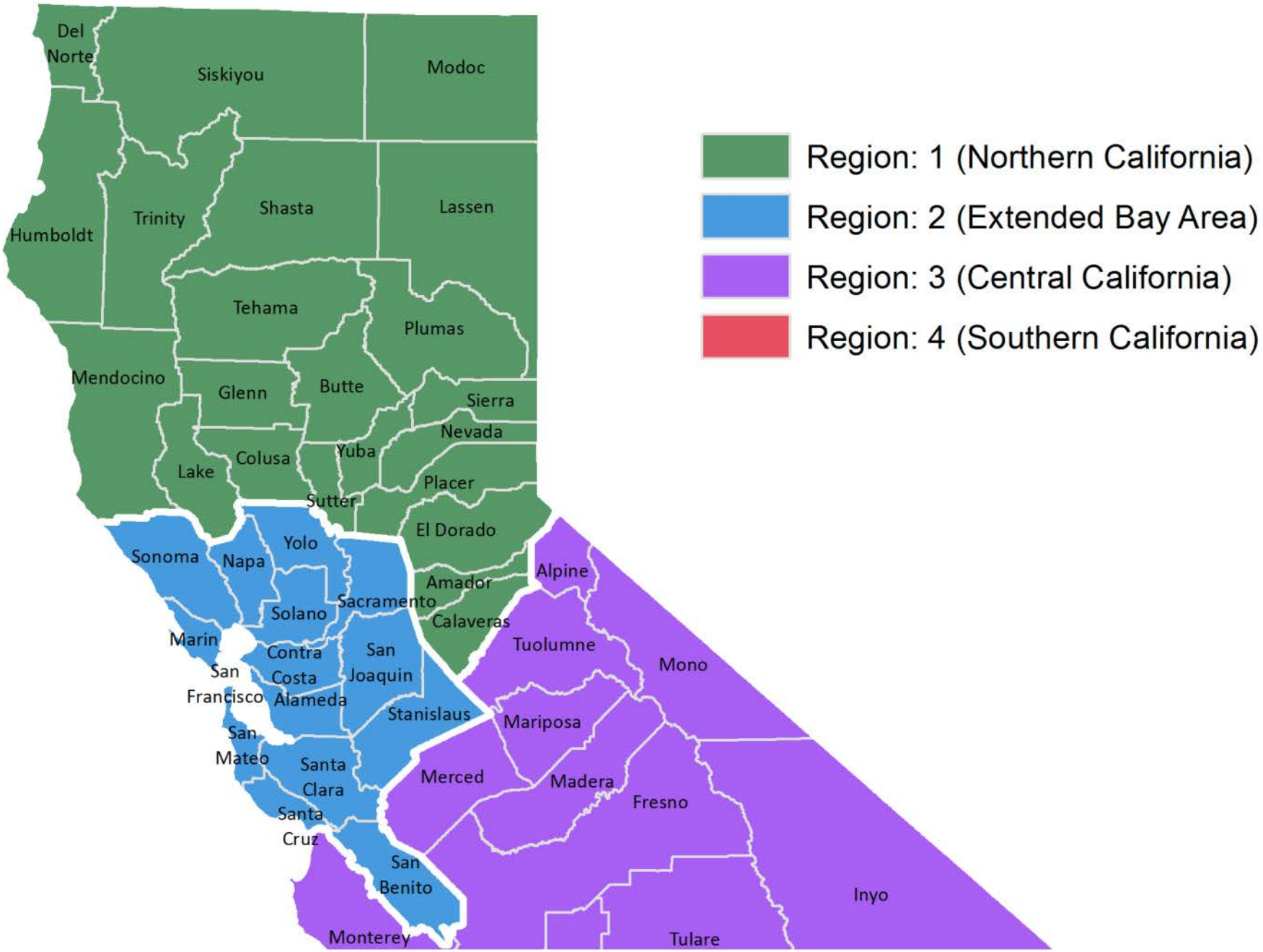
9a. Certain information will be aggregated by geographic region for presentation. How well will information presented by these geographic regions meet your needs?

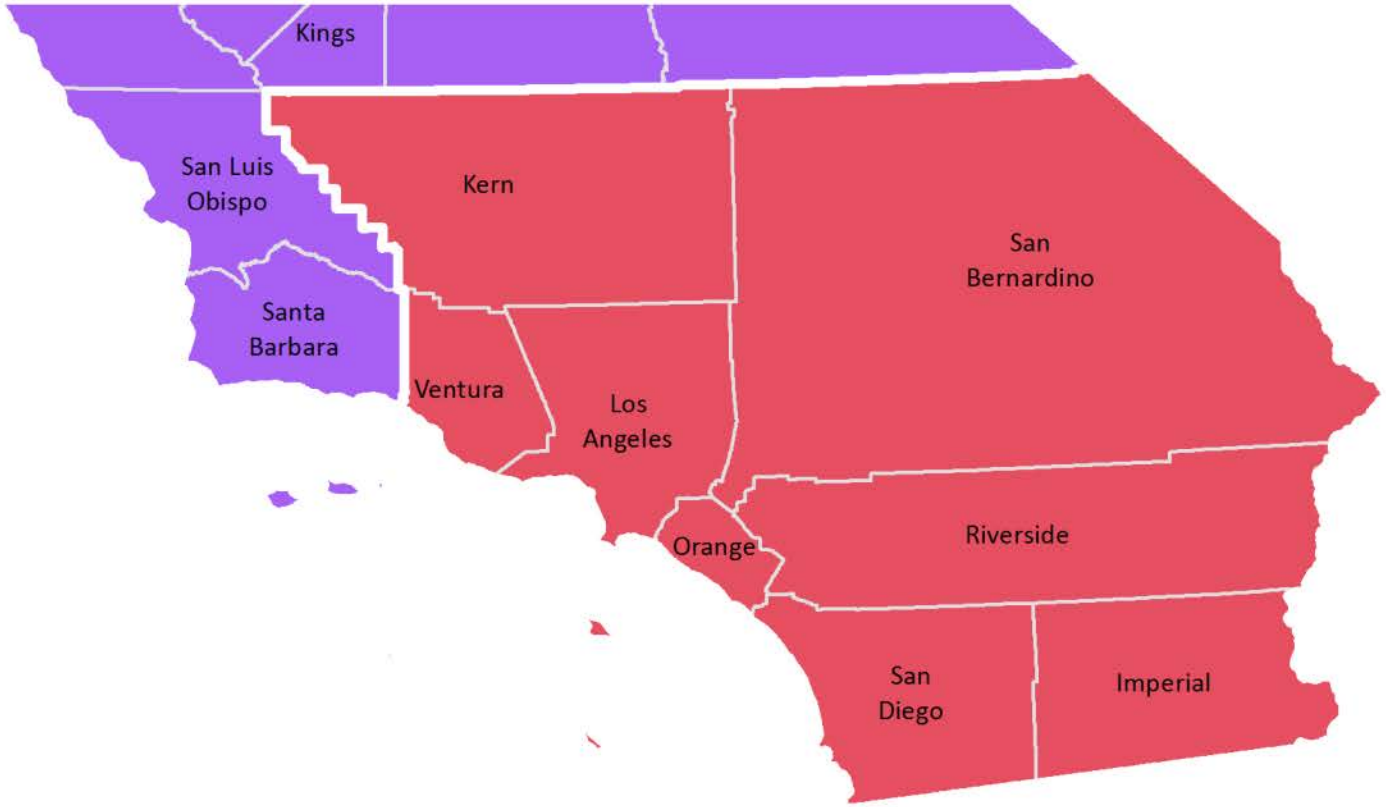
Option	Percent
Problematic	0.00%
Not Useful	6.09%
Neutral/No Opinion	16.75%
Somewhat Useful	33.50%
Very Useful	28.43%
Not Answered	15.23%

Appendix 4: List of Individuals Interviewed

- Stephen Bantillo, Director, Division of Recycling, Department of Conservation
- Ken Bower, Tulare County Environmental Health
- Bill Camarillo, Agromin Premium Soil Products
- Karen Coca, City of Los Angeles
- Kevin Duncombe, Western Pulp and Paper
- Evan Edgar, Edgar and Associates
- Jim Fagleson, Newport International
- Tim Flanagan, Monterrey WMD
- Bill Fraser, Pacific Coast Building Products
- Mike Hammer, Waste Management
- Yvonne Hunter, Institute for Local Government
- Kathy Kellogg, Kellogg Garden Products
- Stan Kezar, Eno Plastics
- Kenneth J. Kim, Corridor Recycling
- Skip Lacaze, City of San Jose
- Nick Lapis, Californians Against Waste
- Mark Madden, Schnitzer Steel
- Rosalie Mule, CIWMB Board Member
- Rachel Oster, Norcal Solid Waste Systems
- John Panenka, Deputy Director of Recycling, Department of Conservation
- Craig Pearson, City of Santa Cruz
- Chris Peck, OPA
- Mary Pitto, regional Council of Rural Counties
- Michael Rushakoff, General Manager, Crown Computer Recycling
- Larry Sweetser, Sweetser and Associates
- Randy Taylor, Goodwill Industries
- Bill Tinnell, Tinnell Fibre
- Chuck White, Waste Management
- Lisa Wood, City of San Diego

Facility Information Toolbox (FacIT)
Region Map




Kings
San Luis Obispo
Kern
San Bernardino
Santa Barbara
Ventura
Los Angeles
Orange
Riverside
San Diego
Imperial

Sample of Confidential data as stored in the FacIT Inventory Database

A shield symbol indicates numbers to be displayed only as a range and a padlock symbol indicates that the information is never displayed to the public, only used as aggregated data in the waste capacity projection model.

Facility Capacity Edit

Annual Facility Capacity:  300,000 (100,000 - 499,999) Tons/Year

- Recent Average Annual Throughput:  150,000 (50,000 - 249,999) Tons/Year

---

Available Annual Unused Facility Capacity:  150,000 Tons/Year

Planned Capacity Changes Edit

No planned capacity changes

Material Inflows/Handling Edit

- Concrete
- Asphalt Paving & Roofing

Inflow % Edit

- Concrete  50%
- Asphalt Paving & Roofing  50%

Total:  100%

California Department of Resources Recycling and Recovery

FacIT Information Confidentiality Policy

August 25, 2011

The California Department of Resources Recycling and Recovery (CalRecycle) and any project contractors and subcontractors (Contractors) representing CalRecycle are committed to ensuring that information identified as confidential by CalRecycle received from public or private waste management and recycling firms and agencies (individually and collectively referred to as "Company" and "Companies") is managed appropriately and not publicly released.

Towards this end, CalRecycle and any Contractors will abide by the following policies.

1. Clearly Identify Confidential Information

Companies or their Facility Operator agents providing information for the FacIT facility and activity inventory database or other FacIT tools will be clearly informed of which requested information will be treated as confidential and which may be released to the public.

2. No Public Release of Confidential Information

No information specifically identified by CalRecycle as confidential will be publicly released on a company or facility-specific basis, with the exception of information that is already public as described under "Exceptions" below.

- Confidential company or facility-specific data may be reported to the public as an aggregated number (e.g., as totals or averages across multiple facilities).
- Data may also be aggregated at a geographic level and with a number and size of facilities sufficient to ensure that the reader cannot reasonably infer sensitive data regarding a particular company or facility. Special attention will be given to safeguarding confidential data associated with large facilities whose data may be readily discernable if aggregated only with small facilities in a given region.
- Specific data on individual facilities may also be reported as being within a broad data range, size class, or as being the average of a broad range where the reported number does not infer to the public the exact company or facility performance.

3. Limited Access to Confidential Information

Facility operators will be given an opportunity to view and edit their information by logging on with a unique password to a secure CalRecycle website server. CalRecycle staff and any Contractor staff access to sensitive data/information will be password protected and access will be limited to only the technical staff maintaining the FacIT database.

4. Confidentiality Provisions in Contracts

CalRecycle's contracts with any Contractors working with FacIT data (which will be incorporated by reference in all subcontract agreements) will include the following clause (as part of Exhibit D, Special Terms and Conditions).

> ***"****Confidentiality/Public Records: The Contractor and CalRecycle understand that each party may come into possession of information and/or data, which is deemed confidential or proprietary by CalRecycle and disclosed as such to the person or organization furnishing the information or data. Such information or data may be subject*

to disclosure under the California Public Records Act, commencing with GC § 6250, or the PCC. CalRecycle and the Contractor agree not to disclose such information or data furnished by the by the person or organization and to maintain such information or data as confidential only to the extent that such information or data is exempt from disclosure under the California Public Records Act and the PCC."

Further, subcontractors will also be required to sign subcontracts that include the following clause:

"*Confidentiality and Proprietary Information: Subconsultant shall keep confidential all information it obtains in connection with the services to be provided under this Agreement and will not disclose any of it without the written consent of the Contractor unless the information is otherwise generally available to the public.*

5. Exceptions

CalRecycle and the Contractor or its subcontractors will not be prohibited from disclosing any information which:

- Is not considered confidential under the terms of the California Public Records Act;
- Is or becomes generally available to the public other than as a result of a disclosure by the Company through the FacIT project;
- Was already in CalRecycle's or the Contractor's possession before any disclosure of the information by the Company;
- Has been or is obtained by CalRecycle or its Contractor from a third party (other than one acting on behalf of the Company) who CalRecycle or the Contractor has no reason to believe is not lawfully in possession of the information and who CalRecycle or the Contractor has no reason to believe is in violation of any contractual, legal or fiduciary obligation to the Company with respect to the information;
- Is required to be disclosed by a subpoena or other directive of a court, administrative agency, quasi-judicial body or arbitration panel; or
- Is independently developed by CalRecycle or the Contractor.