

Permanent Household Hazardous Waste Facility Guidance Document

Publication # IWMB-2009-012

Permanent household hazardous waste (HHW) collection facilities are an integral part of the municipal recycling and solid waste management infrastructure. Removing HHW from the municipal solid waste stream reduces the toxicity of the waste stream disposed at landfills and will reduce the toxicity of the landfill's leachate. HHW is primarily collected through permanent HHW collection facilities and temporary/mobile collection events. Permanent HHW collection facilities are more cost-effective and provide greater public participation opportunities by offering a facility with regular hours.

The design of a permanent HHW collection facility should take into consideration the volume and types of materials expected in the community, convenience to the public, and the cost of building and maintaining such a facility. Each location has unique needs that should be considered in the design of any permanent facility to make sure that the facility provides the best possible service.

Determining the Need for a Permanent HHW Collection Facility

The first step in building a permanent HHW collection facility is to determine whether a permanent facility is needed. This can be determined by assessing the HHW collection needs of the proposed service area and comparing them to the current HHW collection infrastructure. The following factors should be taken into consideration when examining current infrastructure:

- Amount and types of materials collected vs. potential volumes being disposed. HHW collection data is available through California Integrated Waste Management Board (CIWMB) Form 303, which tracks yearly HHW material collection by weight. Data from the [2006-07 CIWMB Form 303 surveys](#) indicate that the average amount of HHW collected yearly per household is 9 lbs. This estimate covers the whole population, not just HHW program participants.
- Level of participation in the current HHW collection infrastructure. FY 2006-07 CIWMB Form 303 survey data estimates a participation rate of 5 percent.
- Convenience/accessibility of the current HHW collection infrastructure.
- Utilize the Department of Toxic Substances Control (DTSC) database to obtain the number of conditionally exempt small quantity generators (CESQGs) in the jurisdiction. It may also be helpful to talk to chambers of commerce and other locals as well since not all CESQGs are registered with DTSC.
- Current cost of the program(s).

Visits to existing HHW facilities are invaluable to understanding the needs of a population. The visits and discussions help to clearly assess the collection trends and demographics of a local population.

If the current infrastructure does not seem sufficient, some alternatives may be considered before building a new permanent facility:

- Increase the number of temporary and/or mobile events

- Set up a shared arrangements with other jurisdictions
- Set up an arrangement with the jurisdiction's residential solid waste hauler

If the demand for HHW collection is increasing only slightly, these alternatives may prove more cost-effective than investing in a permanent site with ongoing operational and maintenance costs.

Facility Size and Design

Facilities should be designed with a long-term plan and possibilities for future expansion in mind. The volume and types of materials that a facility is expected to process need to be factored into the design. A facility that collects many different types of HHW will have different operational needs than one that collects a smaller range of materials. One current trend is an increasing amount of electronic waste (e-waste), which tends to be heavy and much bulkier than other HHW. Due to size restrictions, some jurisdictions have chosen not to collect e-waste at the HHW facility and instead rely on other locations.

Facilities can be built upon pre-existing or brand-new sites. Building upon a pre-existing site could be advantageous if it is already permitted and zoned for handling HHW. Also, it may be cheaper and easier to modify an existing building into an HHW facility than to build a new facility.

A **site-built facility** can be a simple structure providing roof coverage and possibly some external walls, or it can be a specialty building with more complex ventilation and designated materials processing areas. The latter option is good for facilities that manage a high volume of HHW. These specially designed facilities usually have a lifespan of at least 20-30 years and can be custom-tailored to a facility's special needs, but tend to cost more time and money to design and construct. Simple structures often consist of a roof, some external walls, and some internal fencing or other partitions to designate functional areas. This provides minimal weather protection for both HHW and staff. Both of these site-built options allow for a great degree of functional flexibility and are relatively easy to modify or expand for future use.

An alternative to a site-built facility is the use of **pre-fabricated modular units**. Pre-fabricated modular buildings and storage units have the advantage of being relatively inexpensive and easy to set up. Modular buildings can come pre-installed with features such as electrical systems, and expanding a site can be as simple as ordering another module. Facilities managing smaller waste volumes and minimal waste processing may find prefabricated buildings preferable since they minimize the time and cost of the design process.

Pre-fabricated facilities are not as flexible as other buildings, as the size and shape of individual steel modules cannot be altered and they are difficult to move once in place. Due to limitations in size and ventilation, pre-fabricated buildings are not advised for facilities that process a large volume of HHW. Pre-fabricated facilities may be less costly initially, but site-built facilities tend to have longer lifespans in non-arid climates where pre-fabricated units may be subject to rusting.

A combination of site-built and pre-fabricated buildings is another option. Pre-fabricated units are a simple method of separating different waste types in a simple roof structure; having the extra roof structure over these units adds an extra layer of protection and insulation for the HHW. Simple structures can be used in conjunction with pre-fabricated units, or a pre-fabricated

unit can be a quick and easy way to add extra storage to an existing facility. A life-cycle cost comparison should be conducted to determine which option is most cost-effective.

Facility Layout:

The basic steps for managing HHW are:

1. Waste acceptance
2. Sorting
3. Packaging or processing
4. Storage
5. Shipment

The layout should take these steps into account to create the most efficient work flow. This includes separating waste acceptance areas from shipping areas and creating separate vehicle entrances and exits. Materials exchange or reuse areas should be located a good distance away from the waste processing areas so that it does not interfere with those activities.

The model facility designs featured in the larger HHW Guide (pp. 24-27) illustrate possible layouts that can be used as initial starting points for design. They can be modified according to the specific needs of a facility. For example, some of the plans show a large staging area with comparatively small storage areas, but a lack of drum storage is a common concern for HHW facilities. Regulatory requirements state that the drum labels be visible at all times, and that a certain amount of aisle space be maintained between drums. Reducing the staging area to create more drum storage space would help alleviate storage concerns.

Traffic flow patterns and capacity should be taken into account when planning facility layout. Traffic will vary by the day of the week and the time of year. Saturdays are peak flow days and can account for up to 50 percent of a week's traffic. Further recommendations for design layout can be found starting on page 28 of the HHW Guide.

Green/Sustainable Practices

CIWMB encourages green and sustainable building practices. Some simple sustainable building practices include the use of natural lighting and the reuse of existing materials. In San Joaquin County, the facility is positioned to utilize the natural wind direction so that a breeze flows through the building, eliminating the need for air conditioning. Further examples of sustainable practices can be found on page 40 of the HHW Guide.

Siting and Public Participation

There are many zoning and infrastructure elements to take into consideration when siting an HHW facility, as listed on page 43 of the HHW Guide. Site convenience should also be considered by measuring the distance of the site from the nearest population centers and assessing the accessibility of a site from major streets and highways.

HHW facilities are typically located in industrially zoned areas that may already have a number of other undesirable local land uses. An environmental justice analysis of the site, discussed on pp. 44-45 of the HHW Guide, will help to assess if there is a cumulative and disproportionate negative impact from other existing facilities in the area. Involving the public in a meaningful

discussion of the effects of siting a permanent HHW facility is important to establishing and later developing a good relationship with the local neighborhood.

Regulatory Requirements and Permits

Many permits are needed for the construction and operation of an HHW facility. Local regulations and processes vary by county, so it is key to contact the appropriate [Coordinated Unified Program Administrator \(CUPA\)](#). They should have all the information necessary to proceed through the permitting processes.

A list of permits that may be required can be found starting on page 47 of the HHW Guide.

Designing and constructing a permanent HHW facility can be a long, involved process, but a thoughtful and well-designed facility will be a valuable resource for many years, serving a necessary and worthwhile function in California's waste management efforts.