

City of Flagstaff Materials Management Planning Guide

Introduction:

In an effort to improve the collection and storage of waste and recycling at future multifamily and commercial properties, the City of Flagstaff now requires new development applications to submit a Materials Management Plan (MMP) along with a Site Plan Application as of March 22nd, 2018. Along with City staff, this guide will assist you in gaining City approval, as well as designing an efficient and convenient diversion program for future tenants.

Site Plan Requirements:

City of Flagstaff staff will be looking for the following elements as part of your concept and site plans:

- A site plan with the locations of:
 - Trash enclosure areas
 - Centralized storage rooms (if used)
 - Trash chutes (if used)
 - Individual occupant/workstation collection areas (if used)
 - Any other central collection areas
- A diagram that charts the flow of recyclable material from each portion of the development to the recycling and trash enclosure(s). Include location of receptacle(s), frequency of collection, and who is responsible for collecting and transporting recyclable materials. Identify specific materials to be targeted for recycling.
- Demonstration of adequate collection capacity for solid waste and recyclable materials.
 - Size of trash and recycling receptacles
 - Design specifications of enclosures
- Identification of potential solid waste collection route
 - Provide turning radiuses
- A plan for accommodating the waste generated during move-in, move-out periods
- An education program to instruct users of the development about the benefits of recycling and how it works.

Waste Diversion Recommendations

Waste Diversion Planning Fundamentals

In order to maximize the amount of waste diverted from the landfill, **designers should make all recycling and trash services equally easy to use.** If trash services are easier to use, valuable recyclable material will end up in trash receptacles. If recycling services are easier to use, tenants may contaminate receptacles meant only for recycling.

Estimating the Necessary Space

The hauler that collects garbage and recyclables will provide carts and/or bins to hold those materials prior to collection. The size and number of these containers will depend on the size of the project and possibly on the frequency of collection, as well as the types of containers used by the hauler.

The following table will provide a good rule of thumb for developers planning for adequate capacity at different types of properties.

| <u>Land Use</u> | <u>Size/Scale</u> | <u>Minimum Bin Capacity</u> |
|--|---------------------------|--|
| Multi-Unit Residential (where 5 or more units share one bin) | First 20 units | 3 cubic yards of trash and recycling each |
| | Each additional 20 units | Additional 3 cubic yards of trash and recycling each |
| Office and General Commercial | First 20,000 sf | 3 cubic yards of trash and recycling each |
| | Each additional 20,000 sf | Additional 3 cubic yards of trash or recycling |
| Retail | First 8,000 sf | 3 cubic yards of trash and recycling each |
| | Each additional 8,000 sf | Additional 3 cubic yards of trash and recycling each |
| Industrial | First 20,000 sf | 3 cubic yards of trash and recycling each |
| | Each additional 10,000 sf | Additional 3 cubic yards of trash or recycling |
| Institutional | | Sufficient capacity to collect trash and recyclables |

Once the amount of trash and recycling storage capacity is determined, the number of enclosures needed to store collection infrastructure can be determined using the table below. If occupants will be responsible for handling trash and recyclable material, dual enclosures should be utilized to allow for the co-locating of recycling and trash receptacles. If single enclosures are necessary, locate a trash enclosure within 25 feet of a recycling enclosure.

| <u>Bin Capacity</u> | <u>Number of Dual Enclosures</u> | <u>Number of Single Enclosures</u> |
|---|----------------------------------|------------------------------------|
| Less than 12 cubic yards (1/2 dedicated to recycling) | 1 | 2 |
| Each additional 12 cubic yards | 1 | 2 |

These recommended capacities correspond with once-weekly collection of trash and recycling, which is the best practice to strive for. For space limited properties that cannot achieve these capacities, please contact the Solid Waste Section Director, Todd Hanson (thanson@flagstaffaz.gov), for assistance in determining collection capacities with more frequent service.

Planning the Collection Location

In properties with exterior parking lots, the typical practice is to provide walled enclosures that contain bins and carts. These are more attractive and help confine discards to a specific area.

In commercial or residential complexes with parking beneath buildings, storing bins or carts beneath buildings can pose serious difficulties for the collection company. Some trucks need over 20 feet of vertical clearance to empty a bin. Driveways that slope down to the parking garage can make bin handling very difficult. A situation that requires the truck driver to roll out bins or carts for more than a few feet takes time and increases the risk of injury or property damage. Many collection companies charge substantial extra fees in these situations. In short, when there is parking beneath the building, try

to provide space that is adjacent to the parking area but outside the building envelope and at ground level.

At present, there are little options for diverting organic waste, but building designers can plan spaces to accommodate the addition of organics collection in the future.

A well-designed exterior enclosure system will have:

- A pedestrian entrance
- Lever-style door handle that can be operated with hands full
- Pins to hold doors open during collection
- Wall space for instructional signage
- Smooth floor that can be swept or mopped if necessary
- Sufficient space to move bins and carts as needed for easy access by users
- Wheel stops near walls to prevent damage to walls
- Adequate lighting to read signs and sort materials
- Architectural features that match the main building

Multifamily

For low-rise multi-unit residential buildings, there are several common configurations, typically located in or near parking areas to enable residents to recycle or dispose of their materials when they are going to their cars. Complexes with townhome or duplex configurations may have space for trash and recycling carts for each unit. Multifamily buildings with four or more stories are often built with chute systems leading to ground-floor trash rooms. However, these chute systems, discussed in detail below, present major impediments to properly segregating materials, and are best avoided all together.

Providing collection bins in a clean, well-ventilated, ground-floor room is the best way to maximize composting and recycling in multistory buildings.

Commercial

Commercial buildings don't typically use chutes; rather, janitors are responsible for bringing discards from individual suites and floors to a loading dock or central enclosure. A janitor closet on each floor, large enough to store a two or three barrel dolly, will help facilitate collection and/or separation of discards around the building. Additionally, a small workroom near the loading dock for additional sorting may prove useful, should the building management choose to sort discards at the dock. Spillage of liquids and discarded food might occur in this room. A wash station for cleaning organics carts and bins, connected to a sanitary sewer and valved off when not in use (to prevent seepage from inflow of rainwater), is a useful feature.

Considerations for Exterior Enclosures

From the occupants' perspective, trash enclosures should not be right below the window, but should be within a reasonable walking distance. Enclosures that are located away from the perimeter of the property reduce the possibility of illegal dumping by nonresidents. Also, the collector may have access requirements; these are discussed further below.

At a minimum, each enclosure needs to accommodate sufficient trash, and recycling dumpsters or carts to facilitate their use and reduce contamination. The same is true if the building includes collection from a loading dock; be sure there is adequate room for multiple carts on a flat surface (to keep them upright) while still accommodating the trucks that collect from the building.

The collector's needs can introduce additional design constraints. Collection trucks are typically ten-wheeled trucks, 8 feet wide and 30 to 35 feet in length, requiring a minimum turning radius of 40 feet. Depending on their design, trucks may lift containers at the front, rear or side of the vehicle. 15 to 25 feet of vertical clearance for container handling is also necessary. When backing up, drivers of these trucks have limited visibility behind them. Access that requires backing up should be avoided if possible. When enclosures are placed in parking areas, all of these factors need to be taken into account as the layout is designed.

Chutes and Taller Buildings

The best way to maximize recycling in multistory buildings is to avoid the use of chute systems and provide centralized collection bins in a well-ventilated, clean, ground-floor room. For residential complexes, a common recycling area that serves multiple buildings may save maintenance staff labor, as well as provide more program visibility and education opportunities to residents, leading to higher participation.

Developments of three or more stories have often included chutes to convey garbage from each floor down to a collection bin in a ground-floor trash room. Chutes became popular for their convenience and because they helped keep stairwells and elevators clean since residents did not need to carry discards down themselves.

However, with the spread of recycling, chutes are now a major impediment to providing equal access to all streams of waste. This could be further complicated if composting services become readily available in the near future. The best way to avoid these problems is in the design phase, where chutes can be kept out of the picture. In cases where chutes cannot be avoided, one solution could be to use a "carousel" or "diverter chute" system such as those developed by Wilkinson Hi-Rise, LLC (www.whrise.com). However, this should be done with full awareness of the maintenance requirements of such systems, especially when used for source separated organics.

At a bare minimum, developers are encouraged to plan for two chutes, located next to each other, for recycling and trash streams.

Mixed-Use Development

These developments may have retail and/or office space on the ground floor and several stories of residences above, with frontage on a commercial street and parking behind or in an underground garage. Businesses' needs for garbage and recycling space depend on the types of activities they are engaged in. Garbage compactors can hinder recycling by preventing the monitoring of discarded materials and by providing too much capacity for what should be the lowest volume discard stream.

In mixed-use building design, it is important to allow sufficient space to keep residents' discards and those from businesses separate, to simplify monitoring for contamination.

Common Areas

To prevent identity theft, recycling in mail areas should be behind a wall with a slot for access, if possible.

In laundry areas, large plastic jugs and cardboard boxes will require space for several large carts (96-gallon), or space for maintenance staff to keep empty carts nearby to exchange for full ones.

For any common areas used for food-related purposes, organics carts or bins should be added to the stations as well. Organics, recycling and refuse bins must be visible, well labeled and equally accessible.

In a residential setting, recyclables and refuse are generated in common areas such as the mail area and laundry room, so it is important to locate both recycling and refuse containers in these areas.

Providing for In-Unit Recycling

In-unit receptacles and storage spaces are just as important as their external counterparts because these receptacles encourage occupants to recycle. This applies to apartment kitchens and to commercial kitchenettes and conference rooms, where substantial amounts of organic discards may be generated.

If possible, take into account any predetermined sizes and shapes of containers (check with the City of Flagstaff's Zero Waste Coordinator regarding the availability of in-unit recycling receptacles). If space below a sink is designated for this purpose, provide additional cupboard space for items commonly stored below the sink, such as cleansers and cleaning utensils. Also, consider convenient roll-out shelving for recycling tubs or bags.

The best approach is an 8-1/2 x 11-inch frame for an instruction sheet on the inside of the cupboard door or above the receptacle, but a simple "Recycling" or "Organics" label in embossed plastic will also encourage proper discard management.

Multifamily

In multifamily settings, residents often must provide their own in-unit receptacles. As a rule of thumb, provide three cubic feet in the kitchen for recyclables, three cubic feet for refuse, and one cubic foot for organics.

Commercial

In commercial settings, the typical receptacles range in size from 13 to 23 gallons. They tend to be exposed to view or within a cabinet, and have lids that prevent flying insects from gaining access.

Educating Future Occupants

There can be some barriers to employing an effective diversion program on commercial and multifamily properties even with the right infrastructure. Barriers such as high tenant turnover and confusion over what can be recycled can be overcome with simple education efforts. Basic efforts such as ensuring that all collection infrastructure has signage indicating the different waste streams and what can be collected can go a long way in reducing confusion. The City of Flagstaff also has resources, such as door hangers, magnets, signage, and even outreach volunteers to assist property managers in getting the word out to tenants.

Multifamily

A great way to educate tenants in the multifamily setting is to include it as part of the move-in process. Property managers can provide a new tenant with print material that indicates what can and cannot be recycled, as well as point out where collection infrastructure is located. Property managers can even include language in leases that makes it clear that residents are expected to separate trash and recyclable material.

Commercial

Convenient recycling systems and clear signage will help ensure that businesses and their employees recycle properly. A major barrier to recycling on commercial properties can be the cleaning staff servicing a building. This can be overcome by including language in the contract with a custodial company that recyclables must be properly disposed of.

Available Resources

Materials Management Planning Assistance

For further questions, the City of Flagstaff's Zero Waste Coordinator can be reached for assistance when planning your development's solid waste and recycling system.

Post-Construction

Following construction, the City of Flagstaff has multiple resources available to educate tenants of the property.

Recycling and Waste Planning

The Zero Waste Coordinator can be contacted for assistance in tweaking solid waste and recycling systems to maximize the amount of material that is diverted.

Education and Outreach – Print Material, Infrastructure, Master Recyclers

Various types of signage and outreach materials are available to assist in educating tenants. Depending on availability, the City may also have indoor bin infrastructure available for your property.

The City also manages a Master Recycler Program, which is essentially a volunteer outreach corps dedicated to educating Flagstaff residents about recycling and waste-related issues. Master Recyclers have helped provide direct outreach to Multifamily residents and commercial businesses.

For assistance or inquiries about available services, please contact the Zero Waste Coordinator at 928-213-2158 or dlenzen@flagstaffaz.gov.