

KPF

The Rise

Preliminary Waste Management Plan 2023

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1. Project Background

The Rise is a redevelopment project of the existing Vallco Mall in Cupertino, CA. The project will be a mixed-use residential, retail, and office site that consists of 15 blocks interconnected through pedestrian walkways. The program breakdown of the project is outlined in Table 1, with the site layout shown in Figure 1.

Table 1: The Rise Program Breakdown

Land Use	Program (sq. ft.)
Residential	2,950,000
Retail	240,000
Office	1,805,000
Total	4,995,000



Figure 1: Site Layout

2. Purpose

This Preliminary Waste Management Plan document is intended to provide the City of Cupertino Planning, Public Works, and Environmental Programs with an understanding of the preliminary waste generation forecasts, storage provisions, and service strategies intended for The Rise project.

The applicant met with Recology on November 15, 2023 to review the modified design application and these supplemental materials. Recology provided a follow-up letter on December 1, 2023 taking no exception to the design changes.

3. Executive Summary

Various waste streams will be generated across the site from residences, commercial retailers, offices, and public areas. Waste from each building will be transferred vertically through service elevators or waste chutes to either a central waste storage room or horizontal compactor at the loading dock. The waste hauler, Recology South Bay, will then collect waste using front-load collection trucks for waste bins and roll-off collection trucks for compactors.

4. Expected Waste Streams

The primary waste streams that will be generated and stored across the site include the following:

1. Landfill: fabrics, ceramics, broken glass, and litter
2. Mixed-Recycling: single-stream plastics, glass, metals/cans, paper, and cardboard
3. Organics Waste: food scraps, food-soiled paper, and yard trimmings

In addition, specialty waste streams that cannot be intermixed with the primary streams listed above should be stored in separate storage containers and clearly distinguished. These include the following:

1. E-Waste: computers, electronic devices, etc.
2. Recyclable Hazardous Waste: batteries, light bulbs, etc.
3. Non-Recyclable Hazardous Waste: paints, chemicals, sharps (needles), etc.

5. Preliminary Waste Management Strategy

5.1 Overview

Waste storage and collection at The Rise will be separated by residential, retail, and office land uses. Each land use shall have their own central waste storage room and compactor bays as needed per building. Figure 2 through Figure 4 outline indicative storage locations across each block. From these locations, waste shall be transferred out for collection to either the compactor bays (blue) or curbside on an adjacent street to the building.

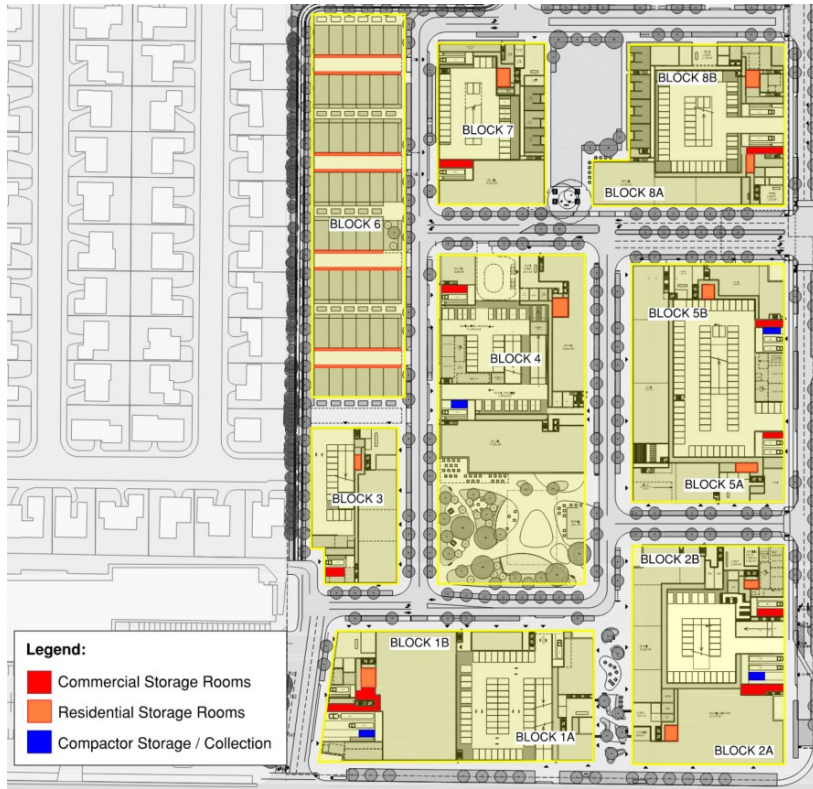


Figure 2: Indicative Waste Storage Areas (Blocks 1A – 8B)

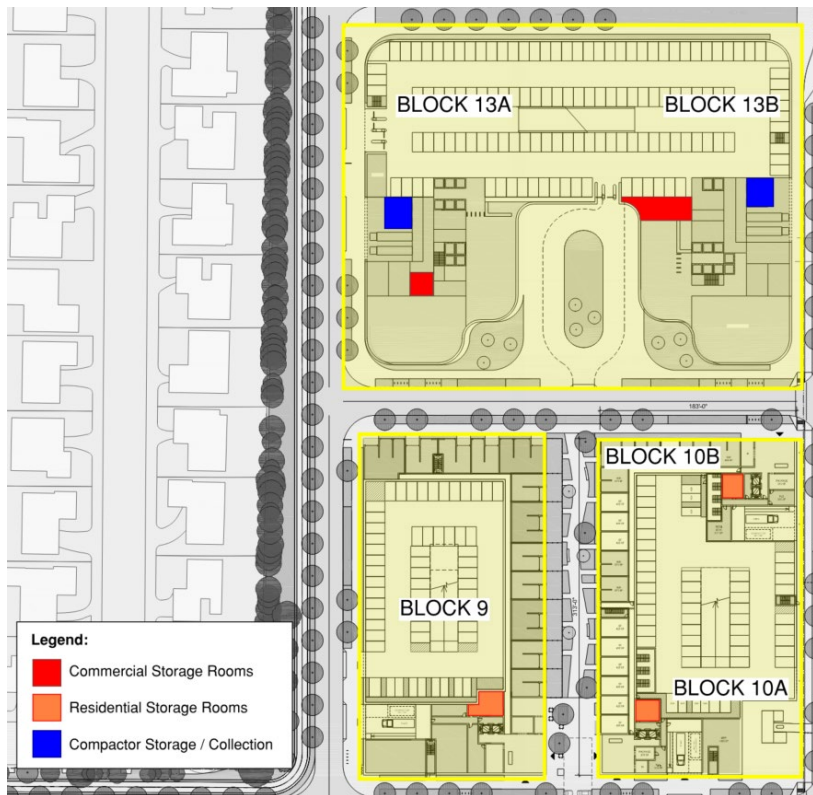


Figure 3: Indicative Waste Storage Areas (Blocks 9, 10A, 10B, 13A, 13B)

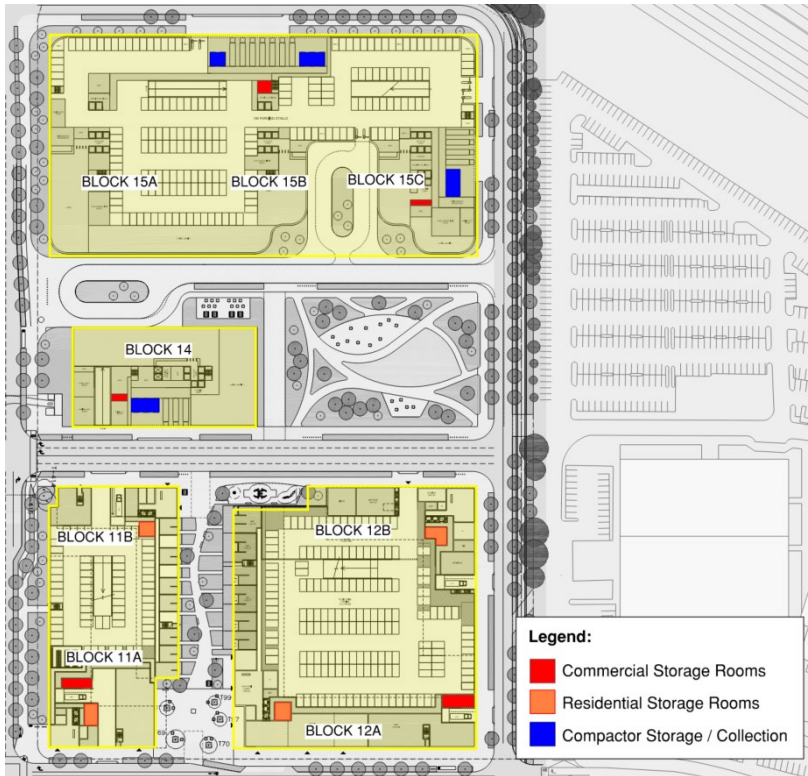


Figure 4: Indicative Waste Storage Areas (11A, 11B, 12A, 12B, 14, 15A-C)

5.2 Residential

5.2.1 Waste Handling

Residences will use a vertical chute system to dispose of their waste. Users will transfer bagged waste from their unit to a central chute system located on each floor level. As multiple chute intakes are required to separate waste streams, signage or other wayfinding should clearly indicate the appropriate stream. Waste will travel down the intake when deposited and release into an apartment compactor integrated with a waste bin at the base of the chute on the first-floor level. Apartment compactors will directly compact waste to reduce storage and labor requirements.

Figure 5 demonstrates an example design for a chute intake system with the primary waste streams being mixed-recycling, landfill, and organics waste.

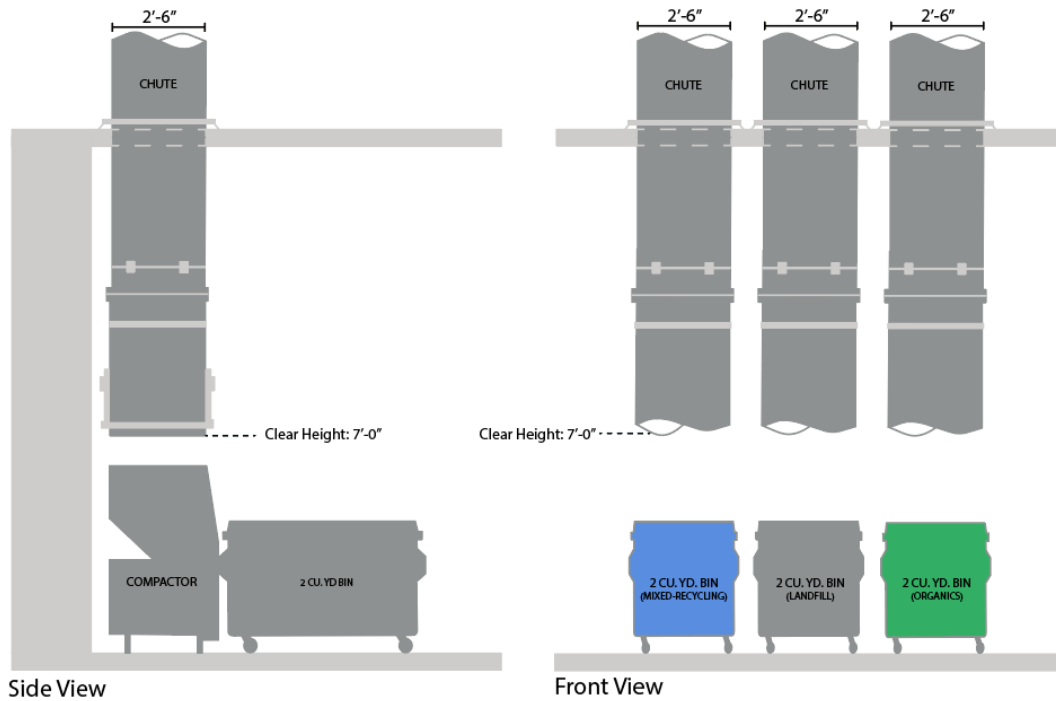


Figure 5: Waste Chute with Apartment Compactor

Waste such as large cardboard, bulky items, or any types of hazardous waste (e.g., batteries, lightbulbs, e-waste, etc.) shall not go down the intake. These streams will be deposited in a separate area on each floor level where staff will collect manually via waste handling equipment and transfer to the base chute room for longer term storage before it is collected.

5.2.2 Waste Storage and Collection

As mentioned in Section 5.2.1, the base chute room will store all residential waste per building before waste bins are transferred out to their collection point. The base chute rooms are sized to include the following components:

1. Three primary waste bins integrated with compactors beneath each chute
2. Storage for additional bins required for swapping throughout the day
3. Storage for specialty waste streams that cannot go down the intake (cardboard, e-waste, hazardous waste)
4. Circulation space for bins
5. Storage and charging for an electric waste tug or caddy to move bins in and out of the base chute room to reduce labor requirements

From the base chute room, bins will be transferred out to their curbside collection point by operations personnel and collected by the waste hauler as demonstrated in Figure 6.

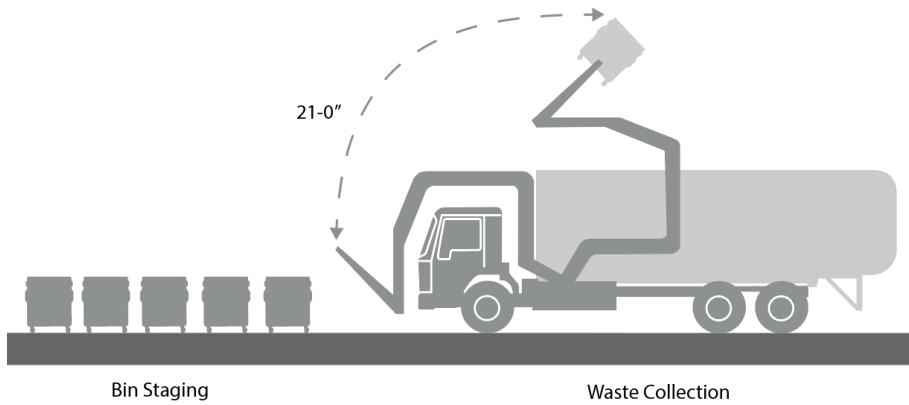


Figure 6: Front-Load Waste Bin Collection

5.3 Commercial

5.3.1 Waste Handling

Retail and office waste will be collected at the point of generation by individual tenants or janitorial staff and transferred to either a central waste storage room on the first-floor level or to compactors at the loading dock depending on the waste stream. Waste handling equipment used to transfer waste to storage locations will consist of either tilt trucks, waste carts, or electric tugs. Service corridors will be designed for two-way waste movements as shown in Figure 7.



Figure 7: Two-Way Waste Flows

5.3.2 Waste Storage and Collection

Roll-Off Compactors

Waste streams that generate high volumes of waste will be stored in large horizontal compactors to minimize space take within the buildings. The City of Cupertino’s waste hauler, Recology, requires a 20’-0” vertical clearance to fully hoist a compactor onto the waste truck bed for collection. Thus, a minimum 22’-0” vertical clearance is required at all compactor bays within loading docks. Figure 8 demonstrates the clear height requirements for compactor collection operations.

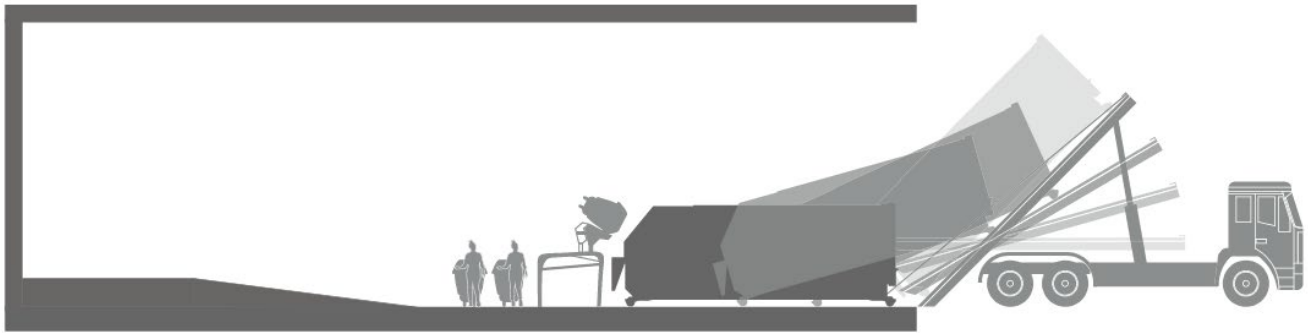


Figure 8: Compactor Collection - Vertical Clearance Requirement

Where a 22'-0" vertical clearance within the building cannot be achieved, the waste hauler will be required to pull out the compactor from beneath the building overhang until there is sufficient clearance to fully hoist it onto the waste truck bed. Alternatively, solutions such as a raised compactor bed and minimal overhang / canopy extension may be considered to reduce the vertical clearance requirement.

Front-Load Waste Bins

For all other waste streams generating lower volumes of waste, central waste storage rooms will be provided near the loading docks to hold standard 1-3 Cu. Yd. bins. These rooms are sized to include the following components:

1. The forecasted number of waste bins per stream based on the commercial program and assumed collection frequency
2. Vertical compaction equipment, if necessary, based on waste volumes per building
3. Circulation space for the transfer of bins
4. Storage and charging for an electric waste tug or caddy to transfer bins and reduce labor requirements

From the central waste storage rooms, bins will be transferred out to their curbside collection point by operations personnel and collected by the waste hauler as demonstrated in Figure 9. For buildings where sufficient vertical clearance is provided within the loading area, waste bins can be staged and collected in front of compactors.

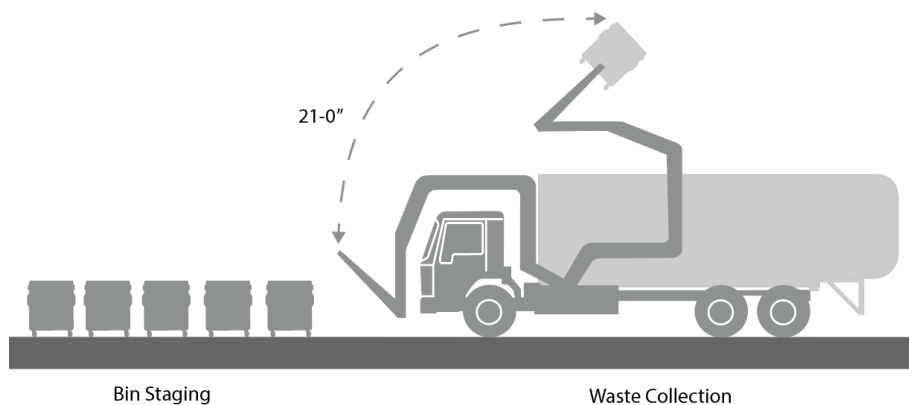


Figure 9: Front-Load Bin Collection – Vertical Clearance Requirement

6. Waste Generation Forecasts

Sections 6.1 and 6.2 outline the daily waste generation and associated storage requirements for the residential and commercial programs, respectively. Estimated waste room sizing includes storage requirements for all primary and secondary waste streams based on their assumed collection frequencies.

6.1 Residential

The residential program at The Rise is expected to generate approximately 233 Cu. Yd. of waste daily. Collection of primary waste streams (landfill, mixed-recycling, organics) is assumed to occur daily, while collection of secondary waste streams (e-waste, hazardous) is assumed to occur weekly.

Waste rooms have been sized according to the guidelines outlined in Section 5.2.2 and will range from 450 sq. ft. to 600 sq. ft. depending on the building program as outlined in Table 2. No horizontal compactors are required for the residential program.

Table 2: Residential Waste Forecast

Building	Program (sq. ft.)	Daily Waste Generation (lbs./ day)	Daily Waste Generation (cu. yd./day)	Waste Room Size (sq. ft.)
1A	115,000	1,070	9.0	450
1B	110,000	1,020	9.0	450
2A	145,000	1,350	11.5	450
2B	140,000	1,300	11.0	450
3	95,000	880	7.5	450
4	405,000	3,750	32.0	600
5A	120,000	1,100	9.5	450
5B	115,000	1,070	9.0	450
6	115,000	1,070	9.0	*3 x 96-gallon containers / unit
7	110,000	1,020	9.0	450
8A	215,000	1,990	17.0	500
8B	90,000	830	7.0	450
9	225,000	2,080	18.0	550
10A	110,000	1,020	9.0	450
10B	90,000	830	7.0	450
11A	95,000	880	7.5	450
11B	115,000	1,070	9.0	450
12A	245,000	2,300	19.0	550

12B	295,000	2,750	23.0	600
Total	2,950,000	27,380	233	8,650

*Block 6 consists of townhome units. The expectation for townhomes is that each unit will have their own set of 3x 96-gallon containers for landfill, mixed recycling, and compost respectively. Therefore, waste room sizes have not been allocated.

6.2 Commercial

The retail program at The Rise is expected to generate approximately 179 Cu. Yd. of waste daily. Collection of primary waste streams (landfill, mixed-recycling, organics) is assumed to occur twice per week, while collection of secondary waste streams (e-waste, hazardous) is assumed to occur bi-weekly or monthly.

Waste rooms have been sized according to the guidelines outlined in Section 5.3.2 and range from 400 sq. ft. to 750 sq. ft. depending on the building program, while compactor provisions range from 0 to 1 as outlined in Table 3.

Table 3: Retail Waste Forecast

Building	Program (sq. ft.)	Daily Waste Generation (lbs./ day)	Daily Waste Generation (cu. yd./day)	Waste Room Size (sq. ft.)	No. of Compactor Bays
1A	20,000	1,700	15.0	750	0
1B	20,000	1,700	15.0	400	1 x 20 Cu. Yd.
2A	35,000	3,000	26.0	550	1 x 30 Cu. Yd.
2B	15,000	1,300	11.0	550	0
3	15,000	1,300	11.0	550	0
4	40,000	3,400	30.0	550	1 x 30 Cu. Yd.
5A	15,000	1,300	11.0	550	0
5B	30,000	2,550	22.5	550	1 x 30 Cu. Yd.
7	10,000	850	7.5	500	0
8A	15,000	1,300	11.0	550	0
11B	10,000	850	7.5	500	0
12A	15,000	1,300	11.0	550	0
Total	240,000	20,550	179	6,550	4 bays

The office program at The Rise is expected to generate approximately 1,157 Cu. Yd. of waste daily. Collection of primary waste streams (landfill, mixed-recycling, organics) is assumed to occur daily due to high volumes, while collection of secondary waste streams (e-waste, hazardous) is assumed to occur weekly.

Waste rooms have been sized according to the guidelines outlined in Section 5.3.2 and range from 200 sq. ft. to 650 sq. ft. depending on the building program, while compactor provisions range from 2 to 3 as outlined in Table 4.

Table 4: Office Waste Forecast

Building	Program (sq. ft.)	Daily Waste Generation (lbs./ day)	Daily Waste Generation (cu. yd./day)	Waste Room Size (sq. ft.)	No. of Compactor Bays
13A	235,000	14,900	151.0	650	2 x 30 Cu. Yd.
13B	200,000	12,700	128.0	600	2 x 30 Cu. Yd.
14	290,000	18,400	186.0	200	3 x 30 Cu. Yd.
15A	325,000	20,700	208.0	200	2 x 30 Cu. Yd. 1 x 40 Cu. Yd.
15B	355,000	22,600	228.0	200	2 x 30 Cu. Yd. 1 x 40 Cu. Yd.
15C	400,000	25,400	256.0	200	2 x 30 Cu. Yd. 1 x 40 Cu. Yd.
Total	1,805,000	114,700	1,157	2,050	16 bays