



**Waste Management Plan for the
Nakano Project
Chula Vista, California**

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A handwritten signature in black ink, appearing to read "Nick Larkin".

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Acronyms and Abbreviations

C&D	Construction and Demolition
CalRecycle	California Department of Resources Recycling and Recovery
City	City of San Diego
ESD	Environmental Services Department
project	Nakano Project
SB	Senate Bill
SWMC	Solid Waste Management Coordinator
WMP	Waste Management Plan

1.0 Introduction

The purpose of this Waste Management Plan (WMP) is to identify the solid waste impacts that would be generated by construction and operation of the proposed Nakano Project (project) and to identify measures to reduce those impacts. This report is prepared for the city of San Diego assuming the project is annexed into the City. The direct impact threshold of significance for projects in the City of San Diego is 1,500.0 tons of waste per year, which would likely occur when developments are over 1 million square feet. Projects that generate more than 60.0 tons of waste per year would have the potential to result in a cumulative impact on solid waste services and are required to prepare a WMP to demonstrate how the project would reduce solid waste impacts to below a level of significance.

The WMP consists of four sections corresponding to the progress of site development, which are the Demolition Phase, the Grading Phase, the Construction Phase, and the Occupancy (post-construction) Phase. The WMP addresses each phase and describes the amount of waste that would be generated by project activities, waste reduction goals, and the recommended techniques to achieve the waste reduction goals. More specifically, for each phase, the WMP includes the following:

- Tons of waste anticipated to be generated.
- Material/type and amount of waste anticipated to be diverted.
- Project features that would reduce the amount of waste generated.
- Project features that would divert or limit the generation of waste.
- Source separation techniques for waste generated.
- How materials shall be reused on-site.
- Name and location of recycling, reuse, or landfill facilities where waste shall be taken.

2.0 Existing Conditions

The project site is located on assessor parcel number 624 071-02, north of the 450 block of Dennery Road, in the City of Chula Vista, California. The 23.8-acre project site is located east of Interstate 805, northwest of Dennery Road, and south of the Otay River. Although the project is located in the City of Chula Vista, it is adjacent to City of San Diego areas on the three sides (west, south, and east). Figure 1 presents the regional location. The project site is currently vacant and was historically used for agricultural purposes, such as row crop cultivation. Agricultural operations ceased on the site circa 2000. Former agricultural building foundations are located in the central area of the site. The majority of the site is flat and consists of disturbed habitat and non-native grasslands, with elevation increasing towards the southern portion of the site. Figure 2 presents an aerial photograph of the project site and vicinity.

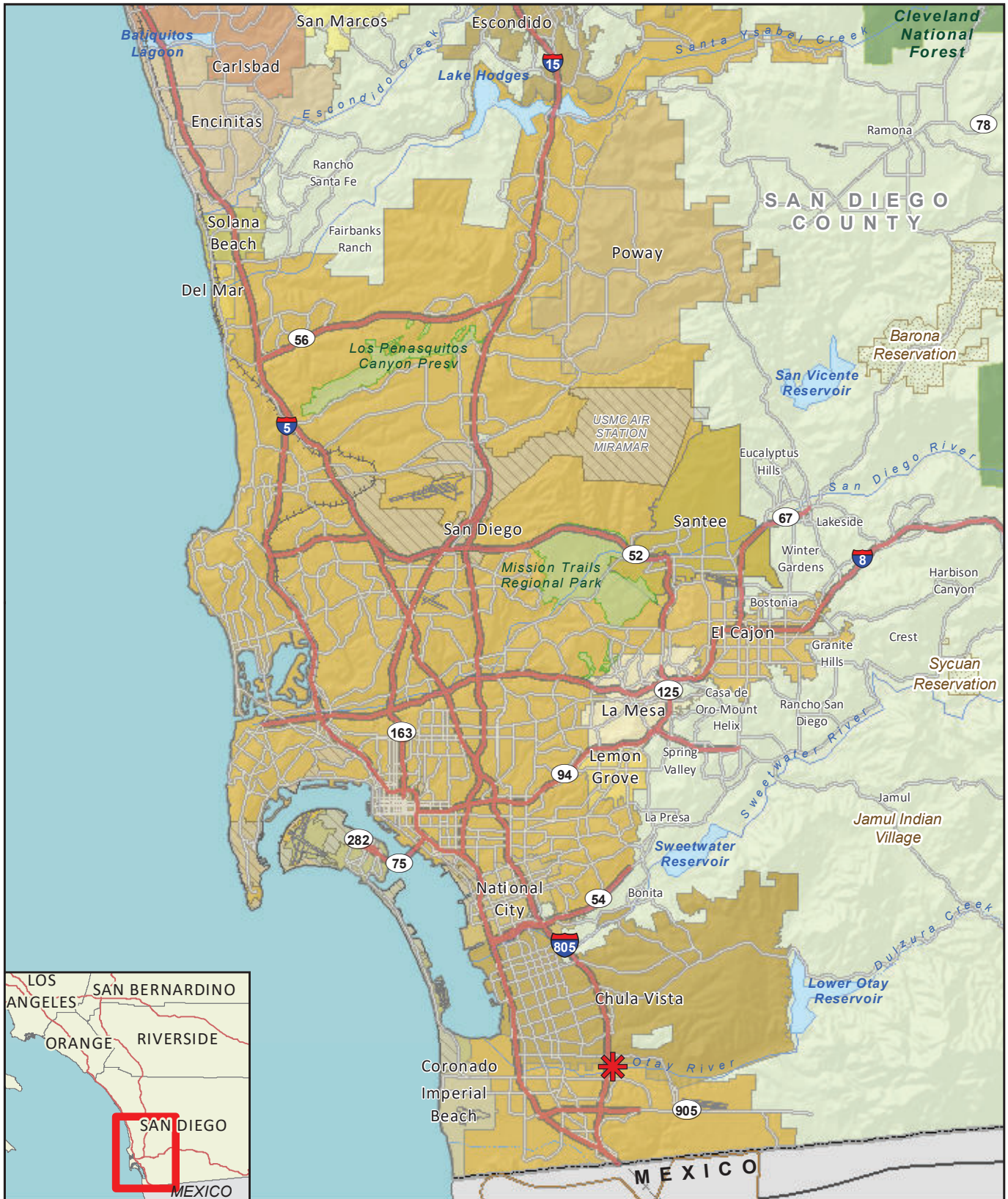
3.0 Proposed Conditions

The project would develop 215 residential dwellings units, consisting of 61 detached condominiums, 84 duplexes, and 70 multi-family dwelling units. Table 1 presents the total square footage of residential development based on the average square footage of each product type. As shown in Table 1, the project would develop approximately 340,073 square feet of residential development.

Product Type	Average Square Footage by Product Type	Number of Units	Total Square Footage by Product Type
Detached Condominiums	1,950	61	118,950
Duplexes	1,565	84	131,418
Multi-Family	1,282	70	89,705
Total		215	340,073

The project would also provide recreational amenities, including two “mini” parks, an overlook park associated with the Otay Valley Regional Park, and a trail connection to the Otay Valley Regional Park. Primary access to the site would be provided via an off-site connection to Dennerly Road, and secondary emergency access via a connection to Golden Sky Way in the River Edge Terrace residential development. The project would also introduce approximately five acres of hardscaped/paved roadway area. The project would demolish and remove approximately 70 cubic yards of concrete foundations associated with former agricultural building located in the central area of the site. Project grading would require approximately 110,400 cubic yards of cut and 133,000 cubic yards of fill, requiring a net import of approximately 22,600 cubic yards of soil. Off-site remedial grading would be required to the north of the site within the City of Chula Vista. Figure 3 presents the proposed site plan.

The project includes two scenarios. Under the No Annexation Scenario, the project would remain within the City of Chula Vista. Under the Annexation Scenario, the project would be annexed into the City of San Diego. While the physical improvements proposed would be the same under either project scenario, the discretionary actions would differ. This WMP has been prepared to satisfy the requirements of the City of San Diego under the Annexation Scenario.



 Project Location

FIGURE 1
Regional Location





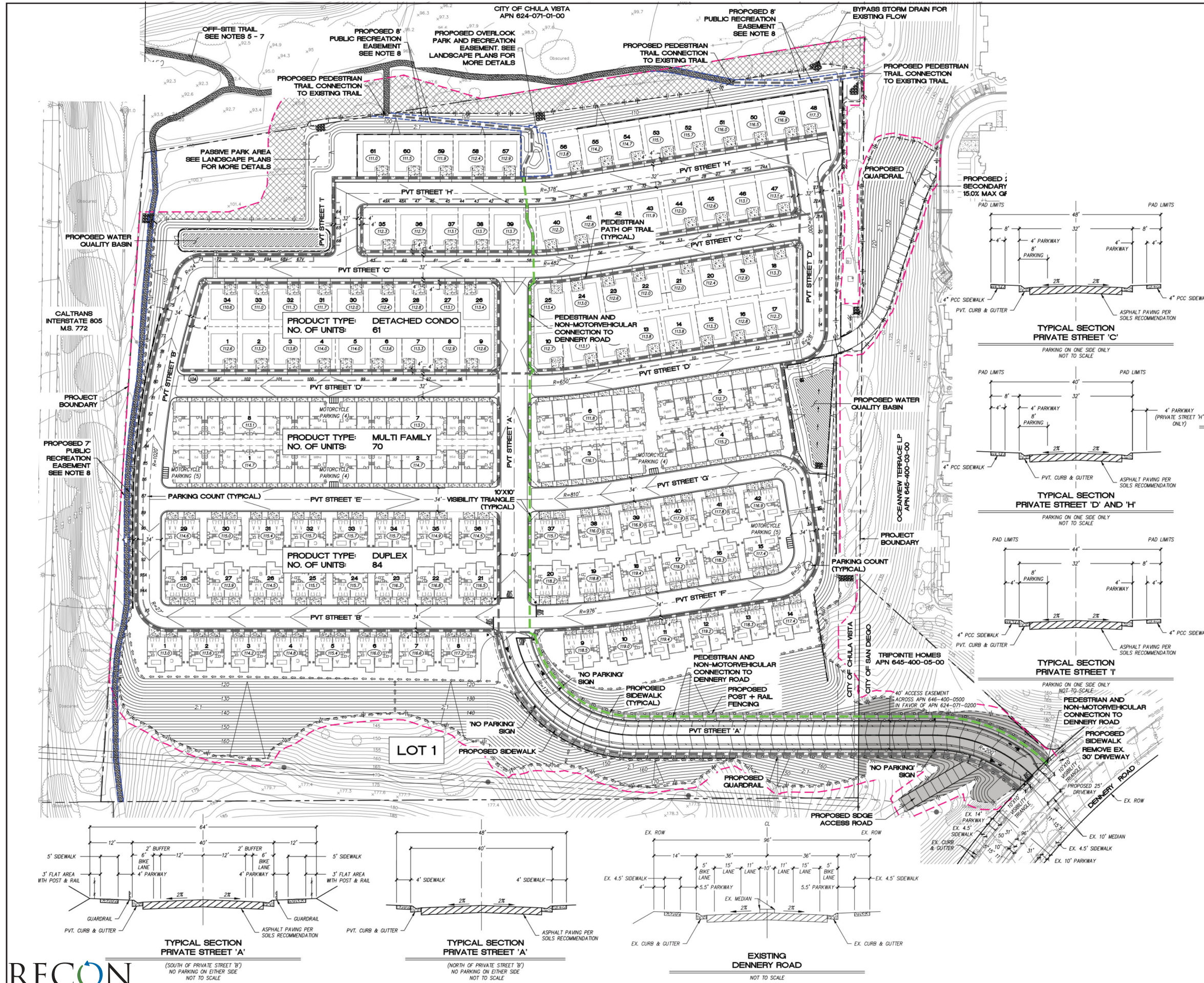
-  Parcel Boundary
-  Impact Limits



FIGURE 2
Project Location on Aerial Photograph



LEGEND

- TM BOUNDARY
- BUILDING NUMBER
- PROPOSED PAD ELEVATION
- PROPOSED CURB / CURB AND GUTTER
- PROPOSED SIDEWALK
- NO OBSTRUCTION INCLUDING FENCES, SHRUBS OR SOLID WALLS IN THE VISIBILITY AREA SHALL EXCEED 24 INCHES IN HEIGHT.
- 10' X 10' VISIBILITY TRIANGLE
- PROPOSED PEDESTRIAN PATH OF TRAVEL
- PROPOSED STREET PER CITY STANDARD DRAWINGS
- 21A
16V
- A = ACCESSIBLE SPACES
V = VAN ACCESSIBLE SPACES

TYPICAL SECTION PRIVATE STREET 'C'
PARKING ON ONE SIDE ONLY NOT TO SCALE

TYPICAL SECTION PRIVATE STREET 'D' AND 'H'
PARKING ON ONE SIDE ONLY NOT TO SCALE

TYPICAL SECTION PRIVATE STREET 'I'
PARKING ON ONE SIDE ONLY NOT TO SCALE

TYPICAL SECTION PRIVATE STREET 'A'
(SOUTH OF PRIVATE STREET 'B')
NO PARKING ON EITHER SIDE NOT TO SCALE

TYPICAL SECTION PRIVATE STREET 'A'
(NORTH OF PRIVATE STREET 'B')
NO PARKING ON EITHER SIDE NOT TO SCALE

EXISTING DENNERLY ROAD
NOT TO SCALE

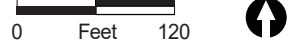


FIGURE 3
Site Plan

4.0 Regulatory Framework

4.1 State Regulations

The California State Legislature has enacted several bills intended to promote waste diversion. In 1989, Assembly Bill (AB) 939, the Integrated Waste Management Act—as modified in 2010 by Senate Bill (SB) 1016—mandated that all local governments reduce disposal waste in landfills from generators within their borders by 50 percent by the year 2000 (State of California 1989 and 2010).

AB 341, approved October 2011, sets a policy goal of 75 percent waste diversion by the year 2020 (State of California 2011). This bill also created a mandatory commercial recycling requirement that would hold local jurisdictions responsible for implementing and complying with the 75 percent diversion rate through outreach and monitoring programs. SB 1383, approved in September 2016, established targets to reduce the amount of organic waste that is landfilled from the 2014 level by 50 percent by 2020, and by 75 percent by 2025. The law grants California's Department of Resources Recycling and Recovery (CalRecycle) the regulatory authority required to achieve the organic waste disposal reduction targets. SB 1383 granted CalRecycle the regulatory authority to achieve these organic waste disposal reduction targets, and it has been working to develop regulations necessary to implement the new law.

4.2 Short-Lived Climate Pollutants: Organic Waste Methane Emissions Reductions (SB 1383)

In September 2016, Governor Brown signed into law SB 1383 (Lara, Chapter 395, Statutes of 2016), establishing methane emissions reduction targets in a statewide effort to reduce emissions of short-lived climate pollutants in various sectors of California's economy. The new law codified the California Air Resources Board's Short-Lived Climate Pollutant Reduction Strategy, established pursuant to SB 605 (Lara, Chapter 523, Statutes of 2014), to achieve reductions in the statewide emissions of short-lived climate pollutants. The law states that actions to reduce short-lived climate pollutants are essential to address the many impacts of climate change on human health, especially in California's most at-risk communities, and on the environment.

As it pertains to CalRecycle, SB 1383 established targets to achieve a 50 percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025. The law grants CalRecycle the regulatory authority required to achieve the organic waste disposal reduction targets and establishes an additional target that not less than 20 percent of currently disposed edible food is recovered for human consumption by 2025.

4.3 City of San Diego Requirements

All landfills within the San Diego region are approaching capacity and are due to close within the next 3 to 20 years. In compliance with the state requirements, the City of San Diego (City) Environmental Services Department (ESD) developed the Source Reduction and Recycling Element,

which describes local waste management policies and programs. The City's Recycling Ordinance, adopted November 2007, requires on-site recyclable collection for residential and commercial uses (City of San Diego 2007a). The ordinance requires recycling of plastic and glass bottles and jars, paper, newspaper, metal containers, and cardboard. The focus of the ordinance is on education, with responsibility shared between the ESD, haulers, and building owners and managers. On-site technical assistance, educational materials, templates, and service provider lists are provided by the ESD. Property owners and managers provide on-site recycling services and educational materials annually and to new tenants. Strategies for compliance are discussed in Section 6.2, Waste Reduction Measures.

The City's Refuse and Recyclable Materials Storage Regulations, adopted December 2007, indicate the minimum exterior refuse and recyclable material storage areas required at residential and commercial properties (City of San Diego 2007b). These are intended to provide permanent, adequate, and convenient space for the storage and collection of refuse and recyclable materials; encourage recycling of solid waste to reduce the amount of waste material entering landfills; and meet the recycling goals established by the City Council and mandated by the State of California. These regulations are discussed further in Section 6.3, Exterior Storage.

In July 2008, the Construction and Demolition (C&D) Debris Deposit Ordinance was adopted by the City (City of San Diego 2008). The ordinance requires that the majority of construction, demolition, and remodeling projects requiring building, combination, or demolition permits pay a refundable C&D Debris Recycling Deposit and divert at least 50 percent of their waste by recycling, reusing, or donating reusable materials. The required diversion rate is currently proposed for an increase to 65 percent. The ordinance is designed to keep C&D materials out of local landfills. Requirements are discussed further in Section 5.4.1, Contractor Education and Responsibilities.

In December 2013, the City Council adopted the Zero Waste Plan, implementing the 75 percent diversion of waste target goal from landfills by the year 2020 and zero waste by 2040. An additional City target of 90 percent diversion by 2035 is proposed in the City's Zero Waste Plan, which is a component of the City's Climate Action Plan.

In order to implement SB 1383, which requires the reduction of organic waste disposed of in landfills, starting in 2022, the City and City-certified private waste haulers are in the planning process to expand organic waste collection services for residents and businesses. Food and yard waste collected will be recycled using the following:

- Composting facilities that make soil amendments, materials that are added to soil to change and improve it.
- Anaerobic digestion facilities, technology and microorganisms break down organic waste in closed spaces where there is no oxygen and create renewable natural gas.

Implementation of these changes will require extensive City procedural changes and coordination amongst different stakeholders. The City is in the process of developing collection operations, adopting purchasing policies, amending the City's Municipal Recycling Code, enacting building requirements, preparing enforcement responsibilities and strategizing public education and outreach efforts. As a result of this enormous planning effort, changes to waste collection for City-

serviced residences is not yet effective, but will be rolled out to residents as services are available (City of San Diego 2021a).

Additional local regulation pertaining to solid waste management includes the City of San Diego's Municipal Code Ch.14 Art. 2 Div. 8: §142.0810, §142.0820, Ch. 6 Art. 6 Div. 7; §66.0706, §66.0709, §66.0710; and Ch. 6 Art. 6 Div. 6; §66.0711, §66.0604, §66.0606. These statutes designate refuse and recycling space allocation requirements for the following:

- On-site refuse and recyclable material storage requirements;
- Diversion of construction and demolition debris regulations; and
- Diversion of recyclable materials generated from residential facilities, businesses, commercial/institutional facilities, apartments, condominiums, and special events requiring a City permit.

The City has established a threshold of 40,000 square feet of development as generating sufficient waste (60 tons) to have a potentially cumulatively significant impact on solid waste services.

The City created the "Whitebook" Standard Specifications for Public Works Construction (City of San Diego 2021b) as a supplement that takes precedence over the specification language contained in the 2021 Greenbook: Standard Specifications for Public Works Construction. The Whitebook addresses the unique conditions in the city that are not addressed in the 2021 Greenbook. Specifically, Part 1 – General Provisions (A), Section 5-14 of the Whitebook addresses construction and demolition waste management.

5.0 Demolition, Grading, and Construction Waste

This section discusses the waste generation and diversion rates from the demolition, grading, and construction phases of the project. According to the Waste Composition Study prepared by the ESD, C&D waste constituted approximately 657,455 tons (39.1 percent) of the overall 1,680,211 tons of waste that were disposed in 1999 (City of San Diego 2000).

5.1 Demolition

As discussed in Chapter 3.0, Proposed Conditions, the project would demolish and remove approximately 70 cubic yards of concrete foundations associated with former agricultural building located in the central area of the site. Based on the ESD C&D Debris Conversion Rate Table, demolished concrete weighs approximately 0.7 tons per cubic yard (Attachment 1). Therefore, project demolition would generate 49 tons of concrete, as shown in the calculation below.

Concrete:

$$70 \text{ cubic yards} \times 0.7 \frac{\text{tons}}{\text{unit}} = 49 \text{ tons}$$

All demolished concrete would be source separated and recycled at the Vulcan Otay Asphalt Recycling Center for 100 percent diversion.

5.2 Grading

Project grading would require approximately 110,400 cubic yards of cut and 133,000 cubic yards of fill, requiring a net import of approximately 22,600 cubic yards of soil.

Project grading would generate green waste that would be source separated and recycled at the Otay Landfill facility for 100 percent diversion. Any planks associated with wooden shed used as a former agricultural cultivation support structure located in the central area of the site would also be source separated and recycled at the Otay Landfill facility for 100 percent diversion. Goals for this phase would be communicated to grading contractors through contract documents, the California Environmental Quality Act document, project conditions of approval that require implementation of WMP measures, and the Solid Waste Management Coordinator (SWMC) for the project.

5.3 Construction

As presented in Table 1 above, the project would construct 215 residential dwelling units, consisting of approximately 340,073 square feet of residential development. The U.S. Environmental Protection Agency (2009) provides an average generation rate of 4.39 pounds of construction waste per square foot for residential uses. Based on this generation rate, project construction waste is estimated to generate a total of 746.5 tons of waste during construction (see calculations and Table 2 below).

Residential:

$$340,073 \text{ square feet} \times \frac{4.39 \text{ pounds}}{\text{square foot}} \times \frac{1 \text{ ton}}{2,000 \text{ pounds}} = 746.5 \text{ tons}$$

Land Use	Amount (square feet)	Generation Rate (pounds per square foot)	Tons Generated
Residential	340,073	4.39	746.5
SOURCE: U.S. Environmental Protection Agency (2009).			

5.4 Waste Diversion

Implementing the City's 75 percent diversion of waste target goal adopted under the Zero Waste Objective requires a majority of waste to be handled at facilities other than landfills. There are two types of waste diversion: "mixed-debris diversion" and "source-separated diversion." Mixed-debris diversion is a method in which all material waste is disposed of in a single container for transport to a mixed C&D recycling facility. Under source-separated diversion, materials are separated on-site before transport to appropriate facilities that accept specific material types. Generally, a greater

diversion rate is achieved under source-separated diversion, as facilities that accept mixed debris typically achieve 50 to 70 percent diversion, whereas single material recyclers often achieve a nearly 100 percent diversion rate (City of San Diego 2013).

The project would implement source-separated diversion. Recyclable waste materials would be separated on-site into material-specific containers and diverted to an approved recycler selected from the City’s ESD directory of facilities that recycle specific waste materials from construction and demolition (Attachment 2). These facilities achieve a 100 percent diversion rate for most materials with the exception of a 75 percent diversion rate for roof material.

Table 3 provides a breakdown of the 746.5 tons by anticipated types of material and provides the most likely handling facility and diversion method. As shown in Table 3, use of the source separation method for most of the material types (where feasible) would result in the total diversion of approximately 641.8 tons, with 104.5 tons of trash/garbage being disposed of in the landfill.

With implementation of the diversion-estimated calculations outlined in Table 3, it is estimated that approximately 86.0 percent of the waste generated during the construction phase of the project would be diverted to appropriate facilities for reuse. Thereafter, 104.5 tons of trash/garbage, equivalent to 14.0 percent of the total construction waste, would be require disposal in the landfill.

Material Type	Estimated Waste (tons)	Percent Diverted ¹	Nearest Handling Facility ¹	Estimated Diversion (tons)	Estimated Disposal (tons)
Asphalt and Concrete	120.2	100%	Vulcan Otay Asphalt Recycling Center	120.2	0.0
Metals	170.9	100%	Cactus Recycling	170.9	0.0
Brick/Masonry/Tile	50.9	100%	Vulcan Carol Canyon Landfill and Recycle Site	50.9	0.0
Clean Wood/Wood Pallets	28.3	100%	Otay Landfill	28.3	0.0
Carpet, Padding/ Foam	60.3	100%	DFS Flooring	60.3	0.0
Drywall	165.9	100%	EDCO Recovery & Transfer	165.9	0.0
Corrugated Cardboard	45.2	100%	Cactus Recycling	45.2	0.0
Trash/Garbage	104.5	0%	Otay Landfill	0.0	104.5
Total	746.3			641.8 86.0%	104.5 14.0%

NOTE: Totals may vary due to independent rounding.
¹City of San Diego ESD 2022 Certified C&D Recycling Facility Directory (see Attachment 2).

5.4.1 Contractor Education and Responsibilities

In order to ensure that the anticipated diversion of waste would occur during project construction, the project would include the designation of a SWMC for the duration of project construction. The SWMC would ensure that all contractors and subcontractors are educated and trained to follow City

waste diversion regulations and that procedures for waste reduction and recycling efforts are implemented. Specific responsibilities of the SWMC would include the following:

- Review the WMP at the preconstruction meeting, including the SWMC responsibilities.
- Distribute the WMP to all contractors when they first begin work on-site and when training workers, subcontractors, and suppliers on proper waste management procedures applicable to the project.
- Work with the contractors to estimate the quantities of each type of material that would be salvaged, recycled, or disposed of as waste, then assist in documentation.
- Use detailed material estimates to reduce risk of unplanned and potentially wasteful material cuts.
- Review and enforce procedures for source-separated receptacles. Containers of various sizes shall:
 - Be placed in readily accessible areas that will minimize misuse or contamination.
 - Be clearly labeled with a list of acceptable and unacceptable materials, the same as the materials recycled at the receiving material recovery facility or recycling processor.
 - Contain no more than 10 percent non-recyclable materials, by volume.
 - Be inspected daily to remove contaminants and evaluate discarded material for reuse on-site.
- Review and enforce procedures for transportation of materials to appropriate recipients selected from ESD's directory of facilities that recycle C&D materials (see Attachment 2 for ESD's facility directory).
- Ensure removal of C&D waste materials from the project site at least once every week to ensure no over-topping of containers. The accumulation and burning of on-site construction, demolition, and land-clearing waste materials will be prohibited.
- Document the return or reuse of excess materials and packaging to enhance the diversion rate.
- Coordinate implementation of a "buy recycled" program for green construction products, including incorporating mulch and compost into the landscaping.
- Coordinate implementation of solid waste mitigation with other requirements such as storm water requirements, which may include specifications such as the placement of bins to minimize the possibility of runoff contamination.

The SWMC would ensure that the project meets the following state law and City Municipal Code requirements. Adjustments would be made as needed to maintain conformance:

- The City's C&D Debris Diversion Deposit Program, which requires a refundable deposit based on the tonnage of the expected recyclable waste materials as part of the building permit requirements (City of San Diego 2008).
- The City's Recycling Ordinance, which requires that collection of recyclable materials is provided (City of San Diego 2007a).
- The City's Storage Ordinance, which requires that areas for recyclable material collection must be provided (City of San Diego 2007b).
- The name and contact information of the waste contractor provided to ESD at least 10 days prior to the start of any work and updated within 5 days of any changes.

5.4.2 Total Diversion

With the oversight of the SWMC, the project would meet City waste diversion goals. Table 4 summarizes the amount of waste estimated to be generated and diverted by each phase of the project. Of the 795.3 tons estimated to be generated, 690.8 tons would be diverted. This would result in the diversion and reuse of 86.9 percent of the waste material generated from the project from the landfill, which would meet the City's current 75 percent waste diversion goal.

Phase	Tons Generated	Tons Diverted	Tons Disposed
Demolition	49.0	49.0	0.0
Grading	0.0	0.0	0.0
Construction	746.3	641.8	104.5
TOTAL	795.3	690.8	104.5
		86.9%	13.1%

NOTE: Totals may vary due to independent rounding.

6.0 Occupancy – Operational Waste

Unlike grading and construction, occupancy is an ongoing process. The project would construct 215 residential dwelling units, consisting of approximately 340,073 square feet of residential development. The project requires an ongoing plan to manage and reduce waste to meet the waste reduction goals established by local and state policies in order to preserve landfill capacity. City efforts have made progress, but studies have shown that there is still room for improvement through additional recycling efforts. Approximately 17 percent of the waste generated in the city and delivered for landfill disposal is paper and 32 percent is compostable organics, all of which could be diverted from landfill disposal. The residential development would be served by a franchisee.

6.1 Waste Generation

The estimated annual waste to be generated during occupancy of the project is based on the expected waste generation that was calculated using the City ESD Waste Generation Factors for non-residential uses (Attachment 3).

The estimated solid waste generation rate for detached residential is 1.6 tons per year per unit, and the estimated solid waste generation rate for multi-family uses is 1.2 tons per year per unit. The estimated annual amount in tons is calculated below.

Detached Residential:

$$61 \text{ detached dwelling units} \times \frac{1.6 \text{ tons}}{\text{year/unit}} = 97.6 \text{ tons/year/unit}$$

Duplex and Multi-Family Residential:

$$154 \text{ duplex and multi-family dwelling units} \times \frac{1.2 \text{ tons}}{\text{year/unit}} = 184.8 \text{ tons/year/unit}$$

Table 5 shows that the proposed industrial use would generate approximately 282.4 tons of waste per year. As discussed in the following section, Waste Reduction Measures, an ongoing plan to manage waste disposal in order to meet state and City waste reduction goals would be implemented by the applicant (or applicant’s successor in interest).

Land Use	Dwelling Units	Generation Rate	Waste Generated (tons)	Percent Diverted	Tons Diverted	Tons Disposed
Detached Units	61	1.6 tons per year	97.6	50%	48.8	48.8
Duplex and Multi-Family Unit	154	1.2 tons per year	184.8	50%	92.4	92.4
Total			282.4		141.2	141.2

SOURCE: Attachment 3.

6.2 Waste Reduction Measures

According to the City’s Guidelines for a Waste Management Plan (City of San Diego 2013), compliance with the City’s Recycling Ordinance is expected to provide a minimum recycling service volume of 50 percent. Therefore, it is anticipated the project would divert approximately 141.2 tons per year during the occupancy phase. The remaining 141.2 tons per year would exceed the 60.0 ton-per-year threshold of significance for a cumulative impact on solid waste services in the City (City of San Diego 2016).

According to the CalRecycle 2018 Facility-Based Characterization of Solid Waste in California (CalRecycle 2020b), organic material accounted for approximately 32.6 percent of the franchised

residential disposed waste. Therefore, of the 141.2 tons of materials remaining after the standard 50 percent diversion rate (see Table 5), it is assumed that 32.6 percent of that tonnage would be organic material equal to 46.0 tons per year (Table 6). To comply with SB 1383, the project would need to demonstrate diversion of 50 percent of organic waste prior to January 1, 2025, and 75 percent diversion thereafter. Based on implementation of new programs and mandates for recycling of food waste and the planned availability of organic material recycling services from franchised waste haulers (refer to Section 4.3 for discussion of new City programs and requirements), a 75 percent diversion of organic waste is anticipated. Only 75 percent diversion is assumed to account for individual non-compliance and assuming certain items would not be eligible for composting. With these assumptions, the project would be consistent with regulatory requirements for 75 percent organic material diversion, diverting a total of 34.5 tons of organic material (see Table 6).

Table 6 Estimate of Project Organic Waste Generation and Diversion	
Tons of Solid Waste Disposed before Organics Recycling (Project)	141.2 tons
Estimated Percentage of Organic Franchised Residential Disposed Waste ¹	32.6%
Estimate of Project Organic Waste	46.0 tons
Estimate 75% diversion with Franchisee organics recycling programs implemented	34.5 tons
Estimated of Disposed Organics	11.5 tons or 75% diversion
NOTE: Totals may vary due to independent rounding. ¹ CalRecycle 2020b, Table 8.	

To mitigate for the cumulative impact on solid waste, the applicant (or applicant’s successor in interest) shall be responsible for implementing a long-term WMP, as outlined below, which would ensure that the development meets or exceeds the requirements set forth in AB 939 and AB 341. This program shall include recyclable collection services required by and in accordance with the Recycling Ordinance, as well as providing exterior storage space for refuse, recyclable materials, and a means of handling landscaping and green waste materials. Specific program measures shall include the following:

- (a) Residential Facilities. For single family residential facilities that receive solid waste collection services from a Franchisee, the responsible person shall provide curbside recycling services to occupants as required by section 66.0706(c). For multi-family residential facilities that receive solid waste collection services from a Franchisee, the responsible person shall provide on-site recycling services to occupants as required by sections 66.0706(c) and 66.0706(d).
- (b) Occupants of Residential Facilities. Occupants of residential facilities that receive solid waste collection services from a Franchisee shall participate in a recycling program, offered by the Franchisee or a Recyclable Materials Collector, by separating recyclable materials from other solid waste, depositing the recyclable materials in the designated recycling containers, and placing the recycling containers out for collection at the time and place designated by the Franchisee or Recyclable Materials Collector.
- (c) Recycling Services. Recycling services for residential facilities shall include, at a minimum, all of the following:

- (1) collection in a separate container and at least two times per month of commingled plastic and glass bottles and jars, paper, newspaper, metal containers, cardboard, and rigid plastics, including clean food containers, jugs, tubs, trays, pots, buckets, and toys;
 - (2) weekly collection in a separate container of yard trimmings and nonhazardous wood waste. If yard trimmings or nonhazardous wood waste will be hauled away by a gardening or landscaping service provider as an incidental part of its services at the property, then the service contract or agreement shall require the gardening or landscaping service provider to take the yard trimmings and nonhazardous wood waste to a mulching or composting facility for recycling;
 - (3) weekly collection in a separate container of food material and food-soiled paper mixed with food material;
 - (4) alternatively, in lieu of San Diego Municipal Code sections 66.0706(c)(2) and 66.0706(c)(3), weekly collection in a separate container of food material or food-soiled paper mixed with food material that is commingled with yard trimmings or nonhazardous wood waste;
 - (5) collection of other recyclable materials for which markets exist, such as scrap metal, as determined by the Director, with collection of such recyclable materials required beginning on the 181st day after the City gives public notice by placing an advertisement of at least one-eighth page in a newspaper of general daily circulation in the City and posting a notice including such recyclable materials on the Department's website;
 - (6) utilization of recycling containers that comply with the size and color standards in the Container and Signage Guidelines established by the Manager;
 - (7) designated recycling collection and storage areas;
 - (8) signage on all recycling receptacles, containers, chutes, and/or enclosures which complies with the standards described in the Container and Signage Guidelines established by the Manager; and
 - (9) containers for recyclable materials in all areas where solid waste containers are located.
- (d) Education. For multi-family residential facilities, and for single family residential facilities receiving recycling services through a homeowners' association, the responsible person shall ensure that persons are educated about the recycling services as follows:
- (1) Information, including the types of recyclable materials accepted and not accepted, the location of recycling containers, the recycling requirements, and the person's responsibility to recycle pursuant to this Division, shall be distributed to all occupants, employees, and contractors annually;
 - (2) All new occupants shall be given information and instructions upon occupancy; and

(3) All occupants shall be given information and instructions upon any change in recycling service to the facility.

(e) Container Contamination. For all residential facilities, the responsible person shall prohibit placing recyclable materials in a container not designated to receive those recyclable materials and shall periodically inspect containers and inform occupants, employees, and contractors if containers are contaminated.

Implementation of a project-specific waste management program would reduce the project's cumulative portion of impacts on solid waste, as, per the City's California Environmental Quality Act Significance Determination Thresholds, the implementation of a WMP would ensure that the overall waste produced is reduced sufficiently to comply with waste reduction targets established in the Public Resources Code (City of San Diego 2016).

6.3 Exterior Storage

This WMP follows the San Diego Municipal Code regarding site refuse and recyclable material storage space requirements (City of San Diego 2007b). Table 7 shows the exterior storage area requirements for non-residential developments.

Because the project would construct 340,073 square feet of residential uses that would generate operational waste, a minimum of 432 square feet of refuse storage area, a minimum of 432 square feet of recyclable material storage area, and a minimum 432 square feet of organic waste storage area would be required. The total exterior refuse, recyclable, and organic waste material storage requirement for the project would be 2,016 square feet. The project would meet this requirement by designing garages associated with each individual residential unit with enough space to accommodate three 12.83-square-foot (96-gallon) carts (see Figure 3). One cart would be for refuse storage, the second for recycling storage, and the third for organic waste storage. Refuse, recyclables, and organic waste stored by each dwelling unit would be collected through curbside garbage and recycling services. Inclusion of these three carts within each residential unit would collectively provide a total of 2,759 square feet of refuse/recycling/organic waste material storage, which would exceed the City requirement to provide 2,016 square feet of refuse, recyclable, and organic waste material storage.

Table 7 Minimum Exterior Refuse, Organic Waste, and Recyclable Material Storage Areas for Residential Development				
Gross Floor Area per Development (square feet)	Minimum Refuse Storage Area per Development (square feet)	Minimum Recyclable Material Storage Area per Development (square feet)	Minimum Organic Waste Storage Area Per Development (Square Feet)	Total Minimum Storage Area per Development (square feet)
1	6.25	6.25	6.25	18.75
2-6	12	12	12	36
7-15	24	24	24	72
16-25	48	48	48	144
26-50	96	96	96	288
51-75	144	144	144	432
76-100	192	192	192	576
101-125	240	240	240	720
126-150	288	288	288	864
151-175	336	336	336	1,008
176-200	384	384	384	1,152
201+	384 plus 48 square feet for every 25 units above 100,001	384 plus 48 square feet for every 25 units above 100,001	384 plus 48 square feet for every 25 units above 100,001	1,152 plus 144 square feet for every 25 units above 100,001
Project Total: 340,073 sq ft.	432	432	432	1,296

SOURCE: City of San Diego Municipal Code, Article 2, Division 8: Refuse and Recyclable Material Storage Regulations, Section 142.0830, Table 142-08C; amended January 27, 2022; effective February 26, 2022.

6.4 Organic Waste Recycling

The project would require landscaping, landscape maintenance, and brush management. Drought-tolerant plants would be used to reduce the amount of green waste produced. Collection of organic waste and its disposal at recycling centers that accept organic waste would further reduce the waste generated by the project during occupancy. Implementation of ongoing WMP requirements would include a means for handling landscaping and other organic waste materials, including food waste. The ongoing WMP measures discussed in Section 6.2, Waste Reduction Measures, would include a means for handling landscaping and other organic waste materials, in addition to food waste recycling (once this service is offered by franchisees). City implementation of SB 1383, including citywide collection and composting of food waste, is anticipated to ensure 75 percent organic material diversion by 2025 as detailed in Section 6.2 (City of San Diego 2021a).

7.0 Conclusion

7.1 Demolition, Grading, and Construction Waste

Diversion goals would be communicated to contractors through contract documents; the project’s California Environmental Quality Act document, this WMP and corresponding project conditions;

and the SWMC for the project. The project would demolish and remove approximately 70 cubic yards of concrete foundations associated with former agricultural building located in the central area of the site, which would generate 49 tons of concrete. All demolished concrete would be source separated and recycled at the Vulcan Otay Asphalt Recycling Center for 100 percent diversion. The project would require a net import of approximately 22,600 cubic yards of fill and would not require any soil export. All green waste would be recycled at the Otay Landfill facility for 100 percent diversion. Therefore, the project would achieve 100 percent diversion during grading. Of the 746.3 tons estimated to be generated during construction, 641.8 tons would be diverted. This would result in the diversion and reuse of 86.9 percent of the waste material generated during the demolition, grading, and construction phases from the landfill, which would meet the City's current 75 percent waste diversion goal.

7.2 Occupancy – Operational Waste

The project would develop 340,073 square feet of residential uses that would generate approximately 282.4 tons of waste per year. As such, the project would be required to provide a minimum of 672 square feet of exterior refuse area, a minimum of 672 square feet of recyclable material storage area, and a minimum 672 square feet of organic waste storage area (total of 2,016 square feet; see Table 7). The project would require each individual residential unit to provide three 12.83-square-foot (96-gallon) carts within their garages. Garages are designed to accommodate these carts. One cart would be for refuse storage, the second for recycling storage, and the third for organic waste storage. Inclusion of these three carts within each residential unit would collectively provide a total of 2,759 square feet of refuse/recycling/organic waste material storage, which would exceed the City requirement to provide 2,016 square feet of refuse and recyclable material storage.

The applicant (or applicant's successor in interest) would implement the ongoing waste reduction measures as prescribed in this WMP to ensure that waste is minimized and that operation of the project would comply with City ordinances. According to the City Guidelines for a Waste Management Plan (City of San Diego 2013), compliance with existing ordinances is expected to achieve a 50 percent diversion rate. Therefore, approximately 141.2 tons of non-recyclable waste per year would be generated from the project, exceeding the 60 ton-per-year threshold of significance for having a cumulative impact on solid waste services. However, preparation of this WMP and implementation of the Waste Reduction Measures outlined in Section 6.2 above would reduce cumulative solid waste impacts to a level less than significant.

8.0 Overall Compliance

Implementation of the strategies outlined in this WMP and compliance with all applicable City ordinances would reduce solid waste impacts related to collection, diversion, and disposal of waste generated from C&D, grading, and occupancy to a level less than significant. Implementation of a project SWMC during the construction phase would divert 86.0 percent of construction waste from landfill disposal. This would reduce the anticipated impact of waste disposal during construction to a level less than significant.

During occupancy, the applicant or applicant's successor in interest would be required to implement the ongoing WMP measures detailed herein to ensure maximum diversion from landfills. The project would provide three 12.83-square-foot (96-gallon) carts within the garages of each unit for refuse storage, recycling storage, and organic waste storage, consistent with City Municipal Code requirements described herein. Compliance with existing ordinances is expected to achieve a 50 percent diversion rate. Preparation of this WMP and implementation of the Waste Reduction Measures, outlined in Section 6.2 above, would reduce cumulative solid waste impacts to a level less than significant.

9.0 References Cited

California, State of

- 1989 Assembly Bill 939. Integrated Waste Management Act.
- 2010 Senate Bill 1016. Solid Waste Per Capita Disposal Measurement Act.
- 2011 Assembly Bill 341. Jobs and Recycling.
- 2016 Senate Bill 1383. Short-Lived Climate Pollutants (SLCP).

California Department of Resources Recycling and Recovery (CalRecycle)

- 2020a New Statewide Mandatory Organic Waste Collection, <https://www.calrecycle.ca.gov/organics/slcp/collection>. Accessed December 22, 2021.
- 2020b 2018 Facility-Based Characterization of Solid Waste in California. May 15.

San Diego, City of

- 2000 Waste Composition Study 1999-2000. Final Report. San Diego Environmental Services Department. November.
- 2007a Recycling Ordinance. San Diego Municipal Code Chapter 6, Article 6, Division 7. November 20.
- 2007b Refuse and Recyclable Materials Storage Regulations. Municipal Code Chapter 14, Article 2, Division 8. December 9.
- 2008 Construction and Demolition Debris Diversion Deposit Program. San Diego Municipal Code Chapter 6, Article 6, Division 6.
- 2013 California Environmental Quality Act – Guidelines for a Waste Management Plan. June.
- 2016 Significance Determination Thresholds. California Environmental Quality Act. July.

2021a New Food and Yard Waste Rules – SB 1383. City of San Diego, Environmental Services.
<https://www.sandiego.gov/environmental-services/recycling/sb1383>.

2021b The “Whitebook” Standard Specifications For Public Works Construction 2021 Edition.
https://www.sandiego.gov/sites/default/files/the_whitebook_2021_edition.pdf.

U.S. Environmental Protection Agency

2009 Estimating 2003 Building-Related Construction and Demolition Materials Amounts.
Available at https://www.epa.gov/sites/production/files/2017-09/documents/estimating_2003buildingrelatedcanddmaterialsamounts.pdf.

ATTACHMENTS

ATTACHMENT 1

City of San Diego Construction & Demolition (C&D) Debris Conversion Rate Table



CITY OF SAN DIEGO

Construction & Demolition (C&D) Debris

Conversion Rate Table

This worksheet lists materials typically generated from a construction or demolition project and provides formulas for converting common units (i.e. cubic yards, square feet, and board feet) to tons. It is a tool that should be used for preparing your Waste Management Form - Part I, which requires that quantities be provided in tons.

Note: Weigh receipts are required for your refund request.

- Step 1:** Enter the estimated quantity for each applicable material in Column I, based on units
- Step 2:** Multiply by Tons/Unit figure listed in Column II. Enter the result for each material in Column III.
If using Excel version, column III will automatically calculate tons.
- Step 3:** Enter quantities for each separated material from Column III on this worksheet into the corresponding section of your Waste Management Form - Part I.

Category	Material	Column I		Column II		Column III	
		Volume	Unit	Tons/Unit	Tons	Tons	Tons
Asphalt/Concrete	Asphalt (broken)	_____	cy	x	0.70 =	_____	_____
	Concrete (broken)	_____	cy	x	1.20 =	_____	_____
	Concrete (solid slab)	_____	cy	x	1.30 =	_____	_____
Brick/Masonry/Tile	Brick (broken)	_____	cy	x	0.70 =	_____	_____
	Brick (whole, palletized)	_____	cy	x	1.51 =	_____	_____
	Masonry Brick (broken)	_____	cy	x	0.60 =	_____	_____
	Tile	_____	sq ft	x	0.00175 =	_____	_____
Building Materials (doors, windows, cabinets, etc.)		_____	cy	x	0.15 =	_____	_____
Cardboard (flat)		_____	cy	x	0.05 =	_____	_____
Carpet	By square foot	_____	sq ft	x	0.0005 =	_____	_____
	By cubic yard	_____	cy	x	0.30 =	_____	_____
Carpet Padding/Foam		_____	sq ft	x	0.000125 =	_____	_____
Ceiling Tiles	Whole (palletized)	_____	sq ft	x	0.0003 =	_____	_____
	Loose	_____	cy	x	0.09 =	_____	_____
Drywall (new or used)	1/2" (by square foot)	_____	sq ft	x	0.0008 =	_____	_____
	5/8" (by square foot)	_____	sq ft	x	0.00105 =	_____	_____
	Demo/used (by cubic yd)	_____	cy	x	0.25 =	_____	_____
Earth	Loose/Dry	_____	cy	x	1.20 =	_____	_____
	Excavated/Wet	_____	cy	x	1.30 =	_____	_____
	Sand (loose)	_____	cy	x	1.20 =	_____	_____
Landscape Debris (brush, trees, etc)		_____	cy	x	0.15 =	_____	_____
Mixed Debris	Construction	_____	cy	x	0.18 =	_____	_____
	Demolition	_____	cy	x	1.19 =	_____	_____
Scrap metal		_____	cy	x	0.51 =	_____	_____
Shingles, asphalt		_____	cy	x	0.22 =	_____	_____
Stone (crushed)		_____	cy	x	2.35 =	_____	_____
Unpainted Wood & Pallets	By board foot	_____	bd ft	x	0.001375 =	_____	_____
	By cubic yard	_____	cy	x	0.15 =	_____	_____
Garbage/Trash		_____	cy	x	0.18 =	_____	_____
Other (estimated weight)		_____	cy	x estimate	=	_____	_____
		_____	cy	x estimate	=	_____	_____
		_____	cy	x estimate	=	_____	_____
Total All						_____	_____

ATTACHMENT 2

City of San Diego 2022 Certified Construction and Demolition Recycling Facility Directory



• **Material taken to a landfill is DISPOSAL. NO diversion credit is given for any material taken to a landfill.**

• You must use one of these facilities to receive diversion credit.

• Please call ahead to confirm details such as accepted materials, days and hours of operation, limitations on vehicle types, and cost.

• Ensure the project address and permit number are on the receipt.

The facilities marked below with an asterisk are transfer stations

IMPORTANT DRIVER INSTRUCTIONS - If you deliver to a transfer station, you must have your driver:

- State that your load is Construction and Demolition (C&D) debris, and ensure it is coded correctly on the receipt.

- Tickets coded as "MSW, trash, or refuse" will receive 0% credit.

	Asphalt/Concrete	Brick/Block/Rock	Building Materials for Reuse	Cardboard	Carpet	Carpet Padding	Ceiling Tile	Ceramic Tile/Porcelain	Clean Fill Dirt	Clean Wood/Green Waste	Drywall	Industrial Plastics	Lamps/Light Fixtures	Metal	Mixed Inerts	Styrofoam Blocks	Trash	Mixed C & D Debris
EDCO Recovery & Transfer 3660 Dalbergia St, San Diego, CA 92113 619-234-7774 www.edcodisposal.com	•									•							•	69%
EDCO Station Transfer Station & Buy Back Center 8184 Commercial St, La Mesa, CA 91942 619-466-3355 www.edcodisposal.com	•			•						•			•				•	69%
EDCO CDI Recycling & Buy Back Center 224 S. Las Posas Rd, San Marcos, CA 92078 760-744-2700 www.edcodisposal.com				•	•	•							•				•	76%
Escondido Resource Recovery 1044 W. Washington Ave, Escondido 760-745-3203 www.edcodisposal.com																		69%
Fallbrook Transfer Station & Buy Back Center 550 W. Aviation Rd, Fallbrook, CA 92028 760-728-6114 www.edcodisposal.com				•									•				•	69%
Otay C&D/Inert Debris Processing Facility 1700 Maxwell Rd, Chula Vista, CA 91913 619-421-3773 www.sd.disposal.com																		85%
Ramona Transfer Station & Buy Back Center 324 Maple St, Ramona, CA 92065 760-789-0516 www.edcodisposal.com				•									•				•	69%
SANCO Resource Recovery & Buy Back Center 6750 Federal Blvd, Lemon Grove, CA 91945 619-287-5696 www.edcodisposal.com				•	•	•							•					69%
Allan Company 6733 Consolidated Wy, San Diego, CA 92121 858-578-9300 www.allancompany.com/facilities				•									•					
Allan Company Miramar Recycling 5165 Convoy St, San Diego, CA 92111 858-268-8971 www.allancompany.com/facilities				•									•					
Alpine Asphalt & Concrete Recycling 5690 Willows Rd, Alpine, CA 91901 760-451-6481 www.alpineasphaltandconcrete.com	•	•	•					•										
Alpine Asphalt & Concrete Recycling 0 Duro Rd, Escondido, CA 92028 760-451-6481 www.alpineasphaltandconcrete.com	•	•	•					•										
Aquafil Carpet Collection 187 Mace St, Chula Vista, CA 91911 619-816-0787 www.aquafil.com				•	•													



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	Asphalt/Concrete	Brick/Block/Rock	Building Materials for Reuse	Cardboard	Carpet	Carpet Padding	Ceiling Tile	Ceramic Tile/Porcelain	Clean Fill Dirt	Clean Wood/Green Waste	Drywall	Industrial Plastics	Lamps/Light Fixtures	Metal	Mixed Inerts	Styrofoam Blocks	Trash	Mixed C & D Debris
Aquafil Carpet Collection 7720 Formula Pl, San Diego , CA 92126 602-562-0444 www.aquafil.com					•	•												
Armstrong World Industries, Inc. 300 S. Myrida St, Pensacola, FL 32505 877-276-7876 (Press 1, Then 8) www.armstrong.com/commceilingsna						•												
CMS Recycling Inc. 1428 West Mission Rd, Escondido, CA 92029 760-741-6300 www.cmsmetals.com			•									•						
DFS Flooring 10178 Willow Creek Rd, San Diego, CA 92131 858-630-5200 www.dfsflooring.com				•	•													
Duco Metals 220 Bingham Drive Suite 100, San Marcos, CA 92069 760-747-6330 www.ducometals.com												•						
Enniss Inc. 12421 Vigilante Road, Lakeside, CA 92040 619-443-9024 www.ennisinc.com	•	•					•	•										
Escondido Materials 500 N. Tulip St, Escondido, CA 92025 760-432-4690 www.weirasphalt.com	•																	
F.J. Willert Contracting 2385 Cactus Rd, San Diego, CA 92154 619-421-1980 www.fjwillert.com	•																	
Habitat for Humanity ReStore 8101 Mercury Ct, San Diego, CA 92108 619-516-5267 www.sandiegohabitat.org			•															
Hanson Aggregates - Hollister St 389 Hollister St, San Diego, CA 92154 858-974-3849	•																	
Hanson Aggregates West - Lakeside Plant 12560 Highway 67, Lakeside, CA 92040 858-547-2141	•																	
Hanson Aggregates West - Miramar 9229 Harris Plant Rd, San Diego, CA 92126 858-974-3849	•							•										



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	Asphalt/Concrete	Brick/Block/Rock	Building Materials for Reuse	Cardboard	Carpet	Carpet Padding	Ceiling Tile	Ceramic Tile/Porcelain	Clean Fill Dirt	Clean Wood/Green Waste	Drywall	Industrial Plastics	Lamps/Light Fixtures	Metal	Mixed Inerts	Styrofoam Blocks	Trash	Mixed C & D Debris	
HVAC Exchange 2675 Faivre St, Chula Vista, CA 91911 619-423-1564 www.hvacx.com														•					
Inland Pacific Resource Recovery 12650 Slaughterhouse Canyon Rd, Lakeside, CA 92040 619-390-1418 www.iprrgreen.com								•											
Los Angeles Fiber Company 4920 S. Boyle Ave, Vernon, CA 90058 323-589-5637 www.lafiber.com				•	•														
Miramar Greenery, City of San Diego 5180 Convoy St, San Diego, CA 92111 858-694-7000 www.miramargreenery.com	•							•											
Moody's 3210 Oceanside Blvd, Oceanside, CA 92056 760-433-3316 www.moodyselfcorazonrecycling.com	•							•						•					
RAMCO 8354 Nelson Way, Escondido, CA 92026 760-205-1797 www.ramco.us.com	•																		
Reclaimed Aggregates Chula Vista 855 Energy Way, Chula Vista, CA 91913 619-656-1836	•													•					
Robertson's Ready Mix 2094 Willow Glen Dr, El Cajon, CA 92019 619-593-1856 www.rrmca.com	•							•						•					
Rockridge Crushing 12485 Highway 67, Lakeside, CA 92040 619-324-7065	•																		
SA Recycling 3055 Commercial St, San Diego, CA 92113 619-238-6740 www.sarecycling.com														•					
SA Recycling 1211 S. 32nd St, San Diego, CA 92113 619-234-6691 www.sarecycling.com														•					
San Pasqual Valley Soils 16111 Old Milky Way, Escondido, CA 92027 760-746-4769 www.spvsoils.com								•											



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SCOR Industries 2321 South Willow Ave, Bloomington, CA 92316 909-820-5046 www.scorindustries.com	•	•	•			•		•	•	•		•	•					
Terra Bella Nursery 302 Hollister St, San Diego, CA 92154 619-585-1118 www.terrabellanursery.com								•	•									
Vulcan Carol Canyon Landfill and Recycle Site 10051 Black Mountain Rd, San Diego, CA 92126 858-530-9465 www.vulcanmaterials.com	•	•						•					•					
Vulcan Materials Company 2275 Hard Rock Rd, Chula Vista, CA 91913 858-530-9472 www.vulcanmaterials.com	•																	
Vulcan Otay Asphalt Recycle Center 7522 Paseo de la Fuente, San Diego, CA 92154 619-571-1945 www.vulcanmaterials.com	•																	

ATTACHMENT 3

City of San Diego Waste Generation Factors – Occupancy Phase

Waste Generation Factors – Occupancy Phase

The following factors are used by the City of San Diego Environmental Services Department to estimate the expected waste generation in a new residential or commercial development.

Residential Uses

Residential Unit = 1.6 tons/year/unit
 Multi-family Unit = 1.2 tons/year/unit

Example: To calculate the amount of waste that will be generated from a project with 100 new homes, multiply the number of homes by the generation factor.

100 single family homes x 1.6 = 160 tons/year
 100 multi-family units x 1.2 = 120 tons/year

Commercial/Industrial Uses

General Retail	0.0028
Restaurants & Bars	0.0122
Hotels/Motels	0.0045
Food Stores	0.0073
Auto/Service/Repair	0.0051
Medical Offices	0.0033
Hospitals	0.0055
Office	0.0017
Transp/Utilities	0.0085
Manufacturing	0.0059
Education	0.0013
Unclassified Services	0.0042

Example: To calculate the amount of waste that could be generated from a new building with 10,000 square feet for offices and 10,000 square feet for manufacturing, multiply the square footage for each use by the generation factor.

10,000 square feet x 0.0017 = 17 tons/year

10,000 square feet x 0.0059 = 59 tons per year

Total estimated waste generation for building = 76 tons/year