Facility Renovations to Meet SB 1383

WRS April 6, 2022

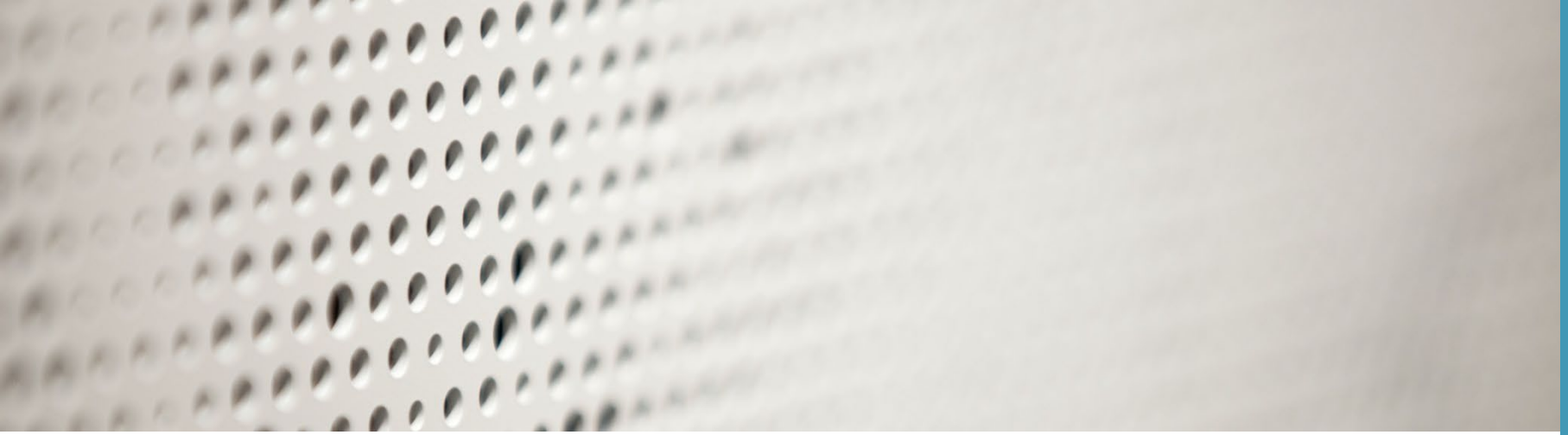
Sunnyvale SMaRT Overview

01 Background and Analysis

02 Capital Costs

03 Increased Diversion

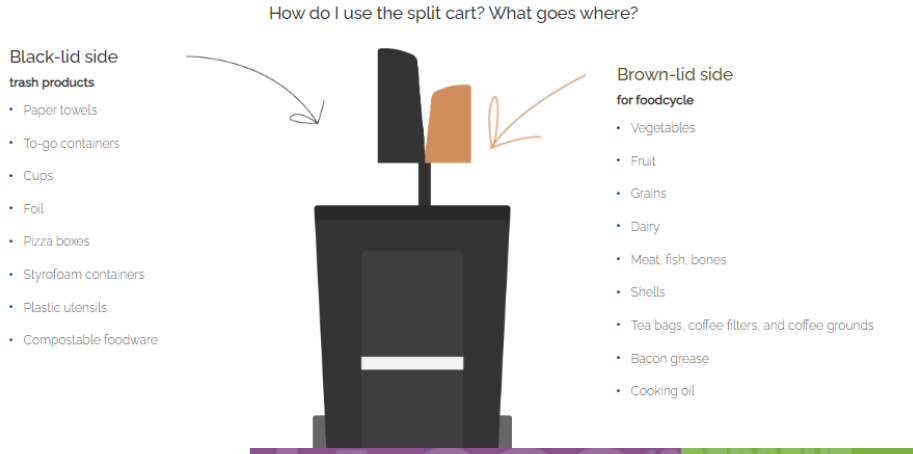
04 Automation vs. Labor Cost

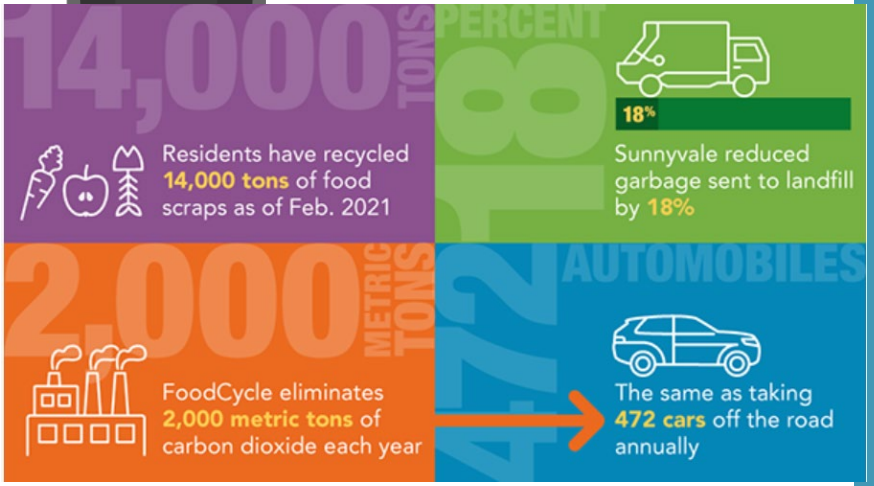


01 Background and Analysis

Sunnyvale Materials Recovery and Transfer Station SMaRT

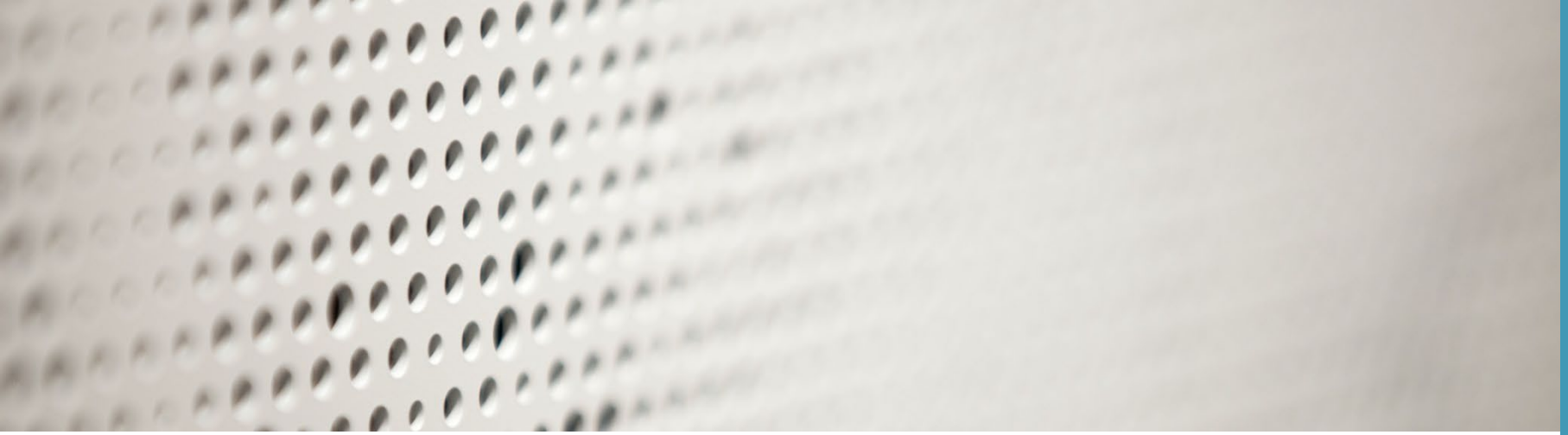
1. Dual Stream Recyclables processing line
2. Green/yard waste grinding line
3. Source separated food waste to animal feed line
4. Mixed waste MRF system





Background Analysis

- Condition Assessment Conclusion
  - 30 yr. old facility condition assessment concludes $11M repairs needed, $3.6M near terms necessary repairs
  - Replace specific pieces of aged equipment $2.7M
  - Replace compactor $2.9M
- Multi-Jurisdiction exploration of interest
  - Three development scenarios
  - Concluded Mountain View and Sunnyvale will continue in MOU



02

Increased Diversion

Next Gen Phase

- Need for focused exploration of diversion to meet SB 1383 requirements
  - Add bag opening/liberation to improve screening efficiency
  - Add screening/classification to improve fines recovery
  - Add screening to capture food soiled paper
- Need for exploration of automation to reduce labor costs
  - Add optical sorter and other equipment improvements to improve diversion
  - Add automation where equipment is less than future labor costs
- Consideration of Building changes to meet possible BAAQMD Rulings
  - Expand, enclose building
  - Explore adding biofilter or air treatment systems

Facility Diversion

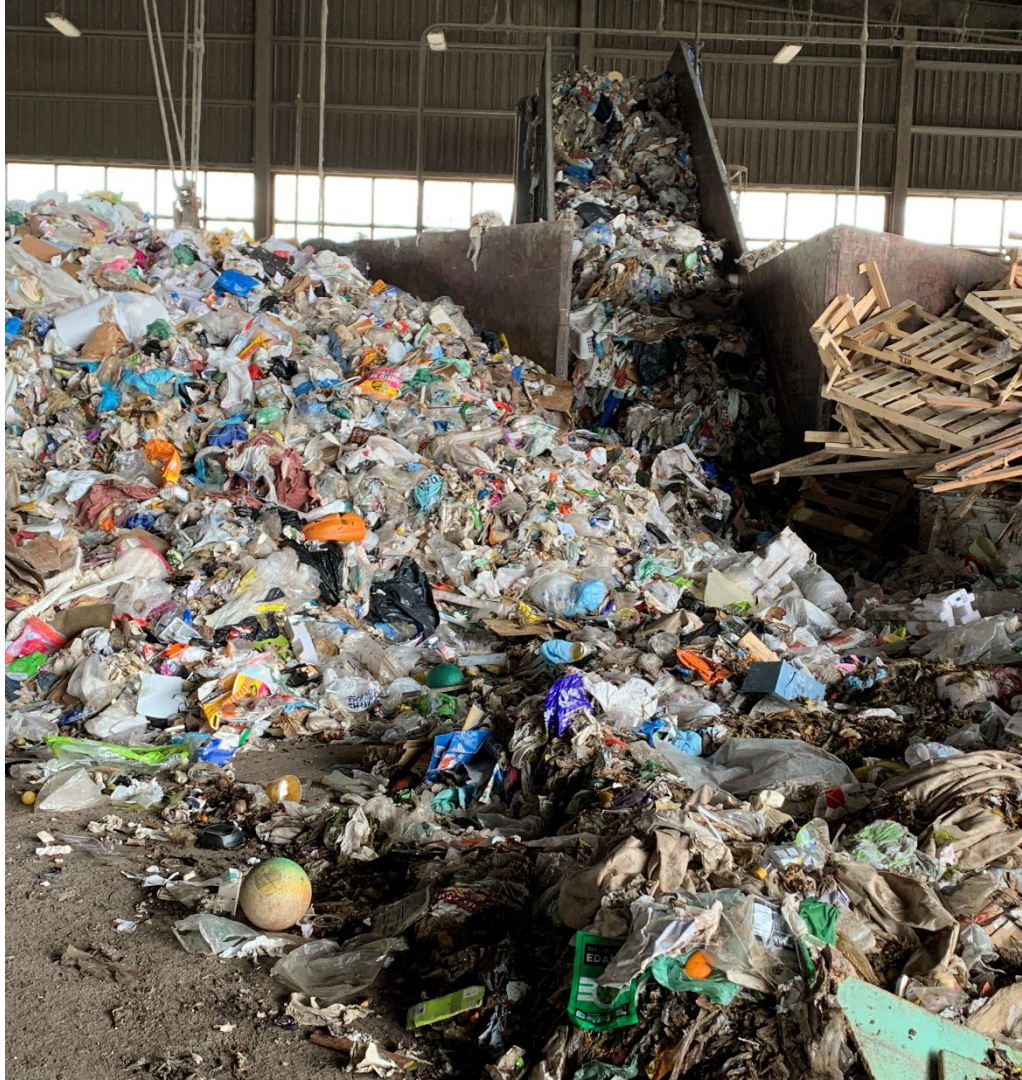
Materials Sources	Tons arriving in 2030	Estimated overall SMaRT Diversion (status quo)	Total future tons needed to be diverted
MSW Total	141,437	43,138	52,798
Curbside Total	28,782	25,098	25,098
Yard Waste Total	25,420	24,657	24,657
Public Haul Total	19,567	13,051	13,051
Grand Total	215,206	105,944	115,604
Facility recovery rate		**49.2%**	**53.7%**

Food Rich MRF Fines

- Already recovering 24,600 tons per year
- Need to recover ~5,000 additional tons per year
- Recover from MRF Screened section of the 5 Inch minus screens
- Add additional screening equipment to increase capacity of the 5 inch and 2 inch screens

Food-Soiled (Compostable Paper)

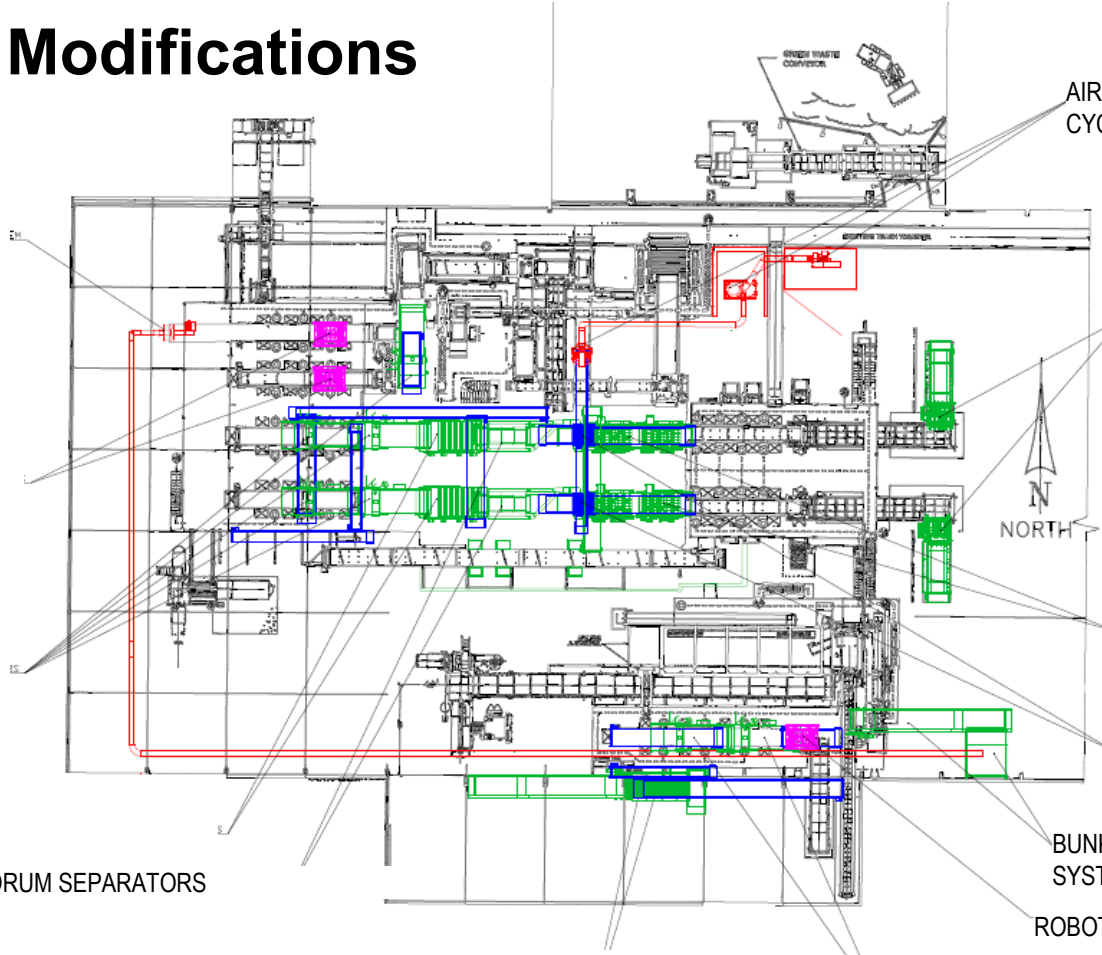
- Need to recover ~5,500 tons per year
- Recover from residue line at the TS loadout area
- Add additional optical sorter or two-dimensional screen at the end of the conveyor head



Equipment Modifications by System

System	Improvements Recommended
Curbside System	Revise infeed with added container bunker Improved screening (OCC and glass) Optical/robotic on container line
Mixed Waste MRF	Improving bag opening and metering function prior to material sorting/trommel, add screening on the residue line to recover fines Add optical sorter or screen to recover paper off the residue line Replace aged equipment
C&D System	No change
Food Waste Pre-Processing	No change
Green Waste - Organics	No change
TS Building Equipment	New compactor

Equipment Modifications



AIR KNIFE/LIGHT FIBER REMOVAL CYCLONE SYSTEM

CONTAINER BLOWER SYSTEM

METERING BINS WITH BAG OPENER

ROBOTIC SORTERS

DOUBLE-DECK MSW SIZING SCREENS

OPTICAL SORTERS

GLASS BREAKER/FINES REMOVAL SCREENS

POLISHING SCREENS

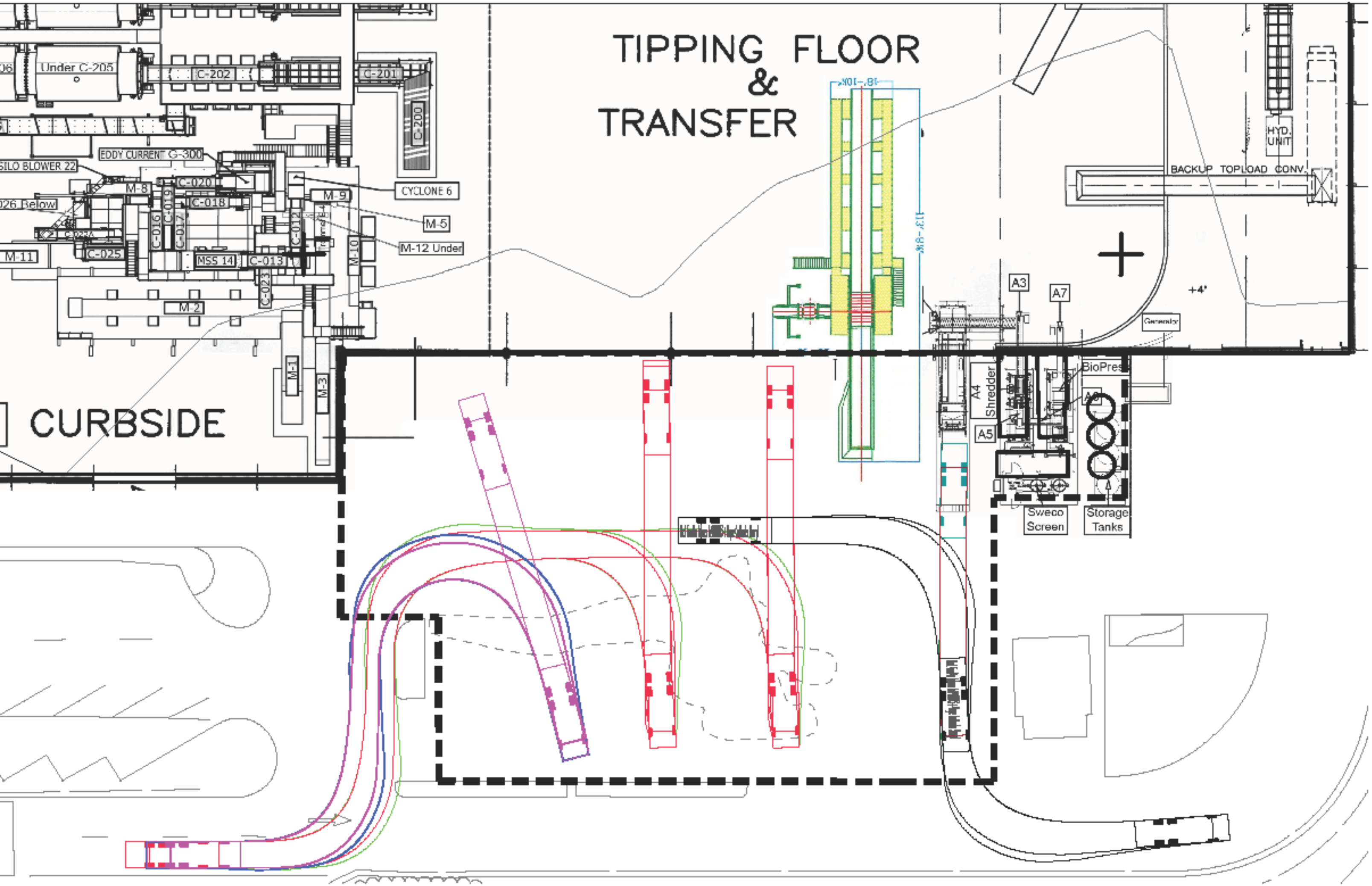
BUNKER/ REMOTE CONTAINER LINE FEED SYSTEM

AIR DRUM SEPARATORS

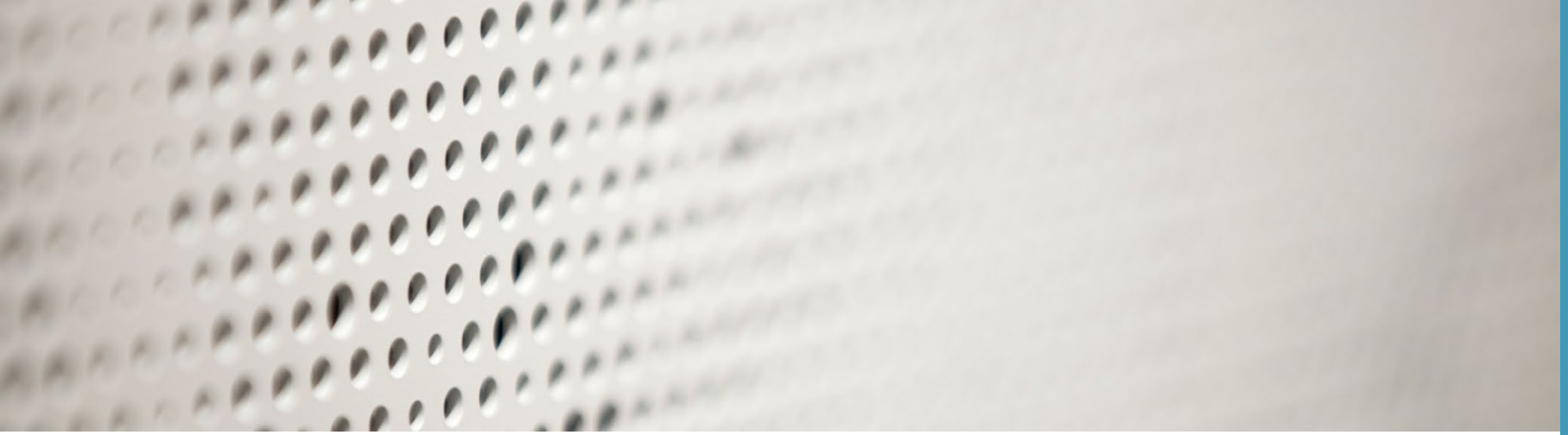
ROBOTIC SORTER

OCC SCREEN W/ POST-SORT

OPTICAL SORTERS


TIPPING FLOOR
&
TRANSFER
CURBSIDE
Under C-205
C-202
C-201
C-200
EDDY CURRENT G-300
SILO BLOWER 22
CYCLONE 6
C-020
C-018
M-8
M-9
M-5
M-12 Under
M-11
C-025
MSS 14
C-013
M-10
M-2
M-1
M-3
HYD. UNIT
BACKUP TOPLOAD CONV.
A3
A7
Generator
BioPres
A4
Shredder
A5
Sweco
Screen
Storage
Tanks

Scenario 3



03 Cost Estimates

Equipment MW MRF Improvements

Mixed Waste MRF Equipment	Cost
New bag opening, size reduction and metering equipment	$1,200,000
Additional screening of the residue line to recover fines	$3,000,000
Additional optical sorters and screens to recover compostable paper	$3,000,000
Replace aged equipment	$2,500,000
Subtotal Mixed Waste MRF Equipment upgrades	**$9,700,000**

Equipment Curbside MRF Improvements

Curbside Equipment Upgrades	Cost
Revise infeed with added container bunker	$1,700,000
Improved screening (OCC and glass)	$2,350,000
Optical/robotic on container line	$1,500,000
Subtotal Curbside Equipment Upgrades	**$5,550,000**

Summary of Equipment Improvements

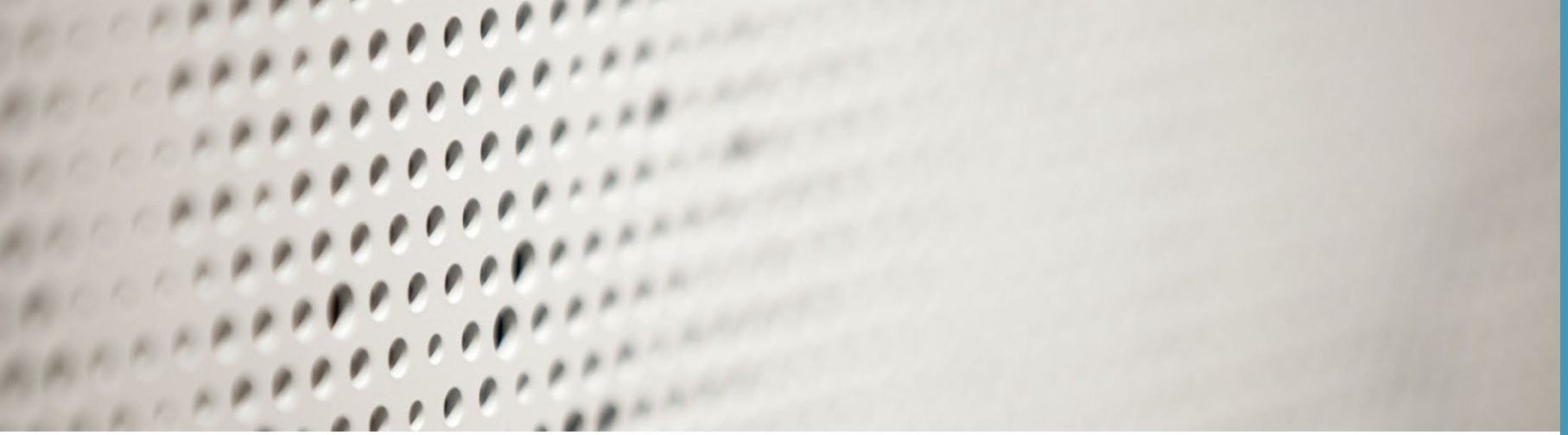
Summation of Mixed Waste MRF and Curbside Equipment	Cost
Total MRF Processing Equipment	**$15,250,000**
Contingency and soft cost (10% contingency, 5% design)	$2,287,500
Total MRF Equipment with Contingency	**$17,537,500**
Annualized cost (assuming 3% interest, 10 year amortization period)	**$2,055,930**

Transfer Station Improvements

Transfer Station Building Repairs/Improvements	Cost
New Compactor and infeed conveyor	$2,900,000
Sitework	$890,000
Building Improvements	$1,480,000
Building Repairs (from ICAP assessment)	$3,610,000
Subtotal Building and Transfer improvements	**$8,880,000**
Contingency /Soft Costs (15% contingency, 12% design, permitting and CM)	$2,397,600
Subtotal Building and Transfer improvements	$11,277,600
Annualized cost (assuming 3% interest, 20 year amortization period)	**$759,000**

Cost Summary

Total Equipment and Building Improvements	Cost
Sum of Equipment and Building Improvements	$24,130,000
Sum of Contingency/Soft Costs	$4,685,100
Total Capital Cost with Contingency	**$28,815,100**
Sum of Annualized Equipment and Capital cost	**$2,814,930**



04 Automation vs. Labor Costs

MW MRF Equipment Improvements compared to sorter cost

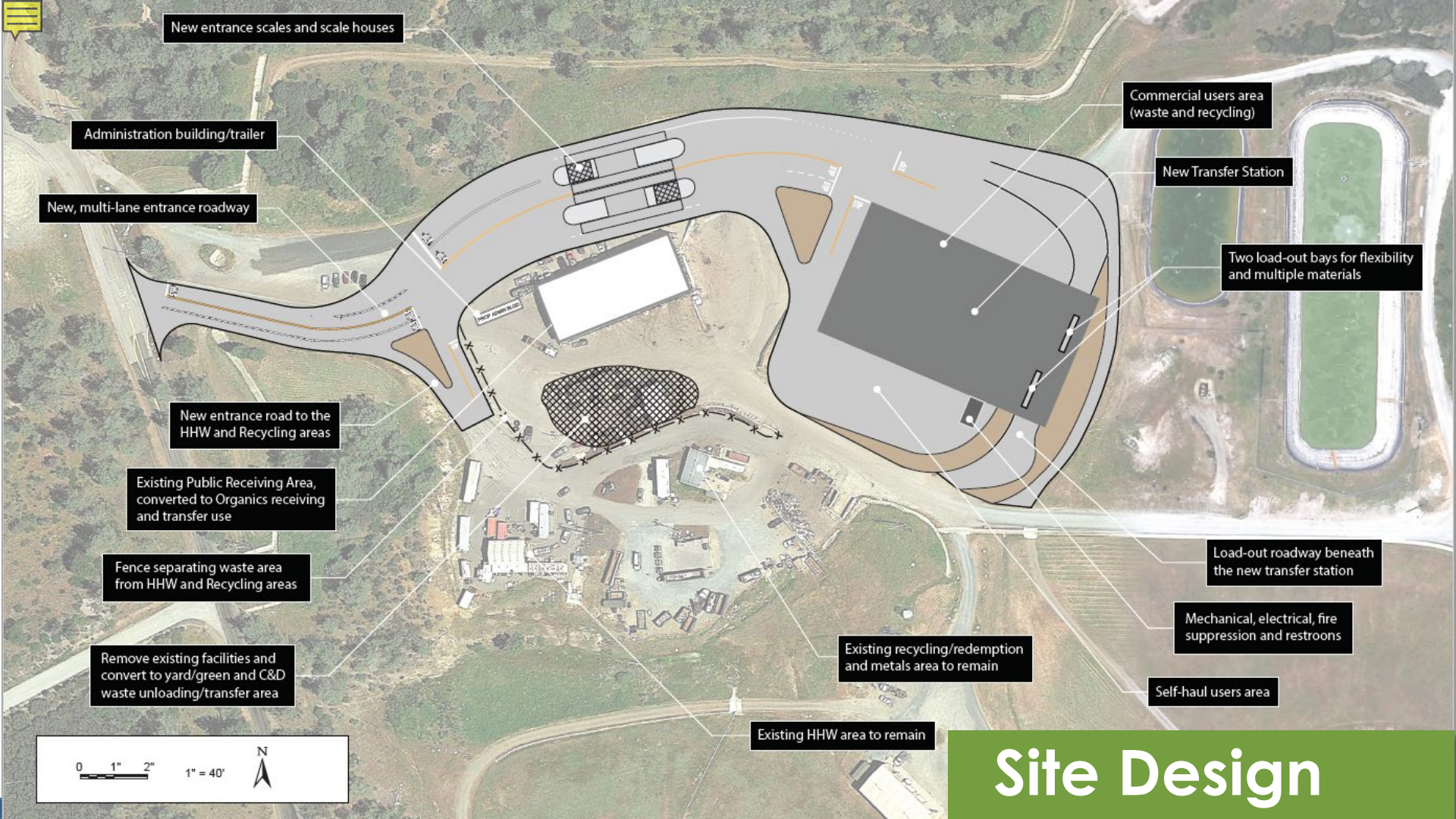
	Low Range	High Range
Capital Costs		
MW MRF & TS Equipment	$9,693,000	$15,493,000
Contingency /Soft Costs	$2,617,000	$4,184,000
Total	$12,310,000	$19,677,000
MW MRF Upgrades Annual Payment	**$1,443,000**	**$2,307,000**
Sorters		
Annual Cost per Sorter - Average 2022-2026	$103,600	$103,600
MW MRF Staffing Reductions (Number of Sorters)	-5	-10
MW MRF Staffing Reductions - Annual Savings	-$518,000	-$1,036,000
Net Costs for MW MRF Equipment Improvements	**$925,000**	**$1,271,000**

Curbside Line Improvements compared to sorter cost

	Cost
Capital Costs	
Curbside Line Upgrades	$5,550,000
Contingency/Soft Costs	$1,498,000
Total	$7,048,000
Curbside Line Upgrades Annual Payment	**$826,000**
Sorters	
Annual Cost per Sorter - Average 2022-2026	$103,600
Curbside Staffing Reductions (Number of Sorters)	-10
Curbside Staffing Reductions - Annual Savings	-$1,036,000
Net Costs for Curbside Equipment Improvements	**-$210,000**

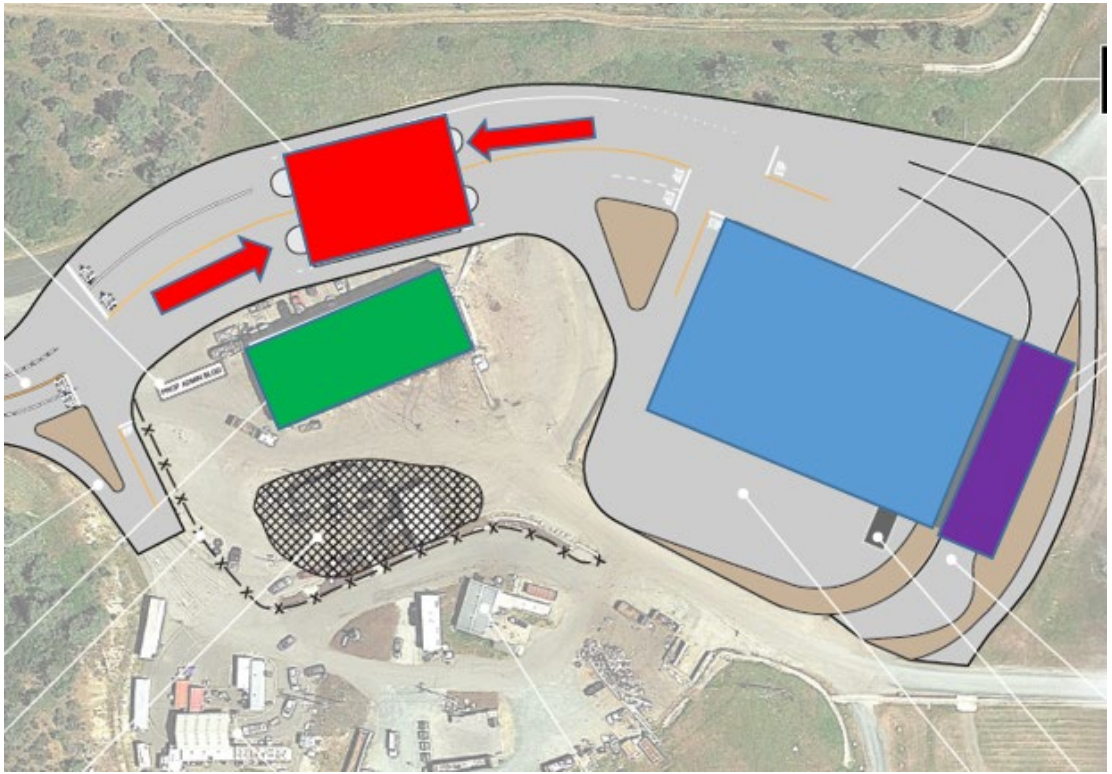
McCourtney Road Transfer Station Renovation Project

Existing Conditions


New entrance scales and scale houses
Administration building/trailer
New, multi-lane entrance roadway
New entrance road to the HHW and Recycling areas
Existing Public Receiving Area, converted to Organics receiving and transfer use
Fence separating waste area from HHW and Recycling areas
Remove existing facilities and convert to yard/green and C&D waste unloading/transfer area
Commercial users area (waste and recycling)
New Transfer Station
Two load-out bays for flexibility and multiple materials
Load-out roadway beneath the new transfer station
Mechanical, electrical, fire suppression and restroons
Existing recycling/redemption and metals area to remain
Self-haul users area
Existing HHW area to remain
0 1" 2"
1" = 40'
N
Site Design

Key Project Goals

- **Resolve offsite traffic queuing**
- **Increase self-haul unloading from 8 to 26 bays**
- **Increase load-out capacity**
- **Repurpose existing Transfer Building as Organics Building**



Key Design Parameters

- Continued Non-mandatory waste program
- Uninterrupted Facility Operations
- Readiness for SB 1383 Organics program
- Up to 100 vehicles per hour
- Commercial/Public separation

Current Northwest View

Proposed Northwest View

Current Southeast View

Proposed Southeast View

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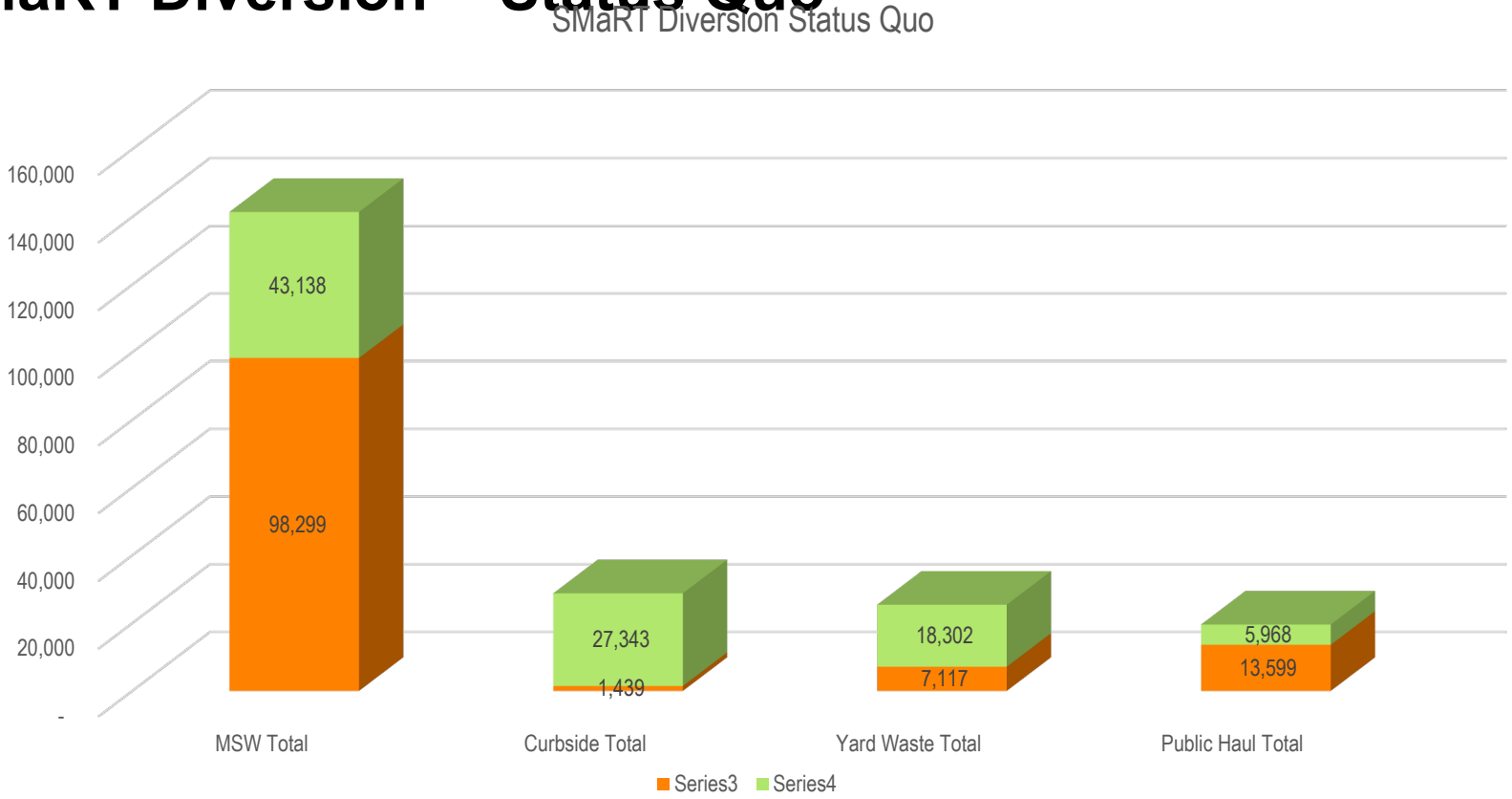
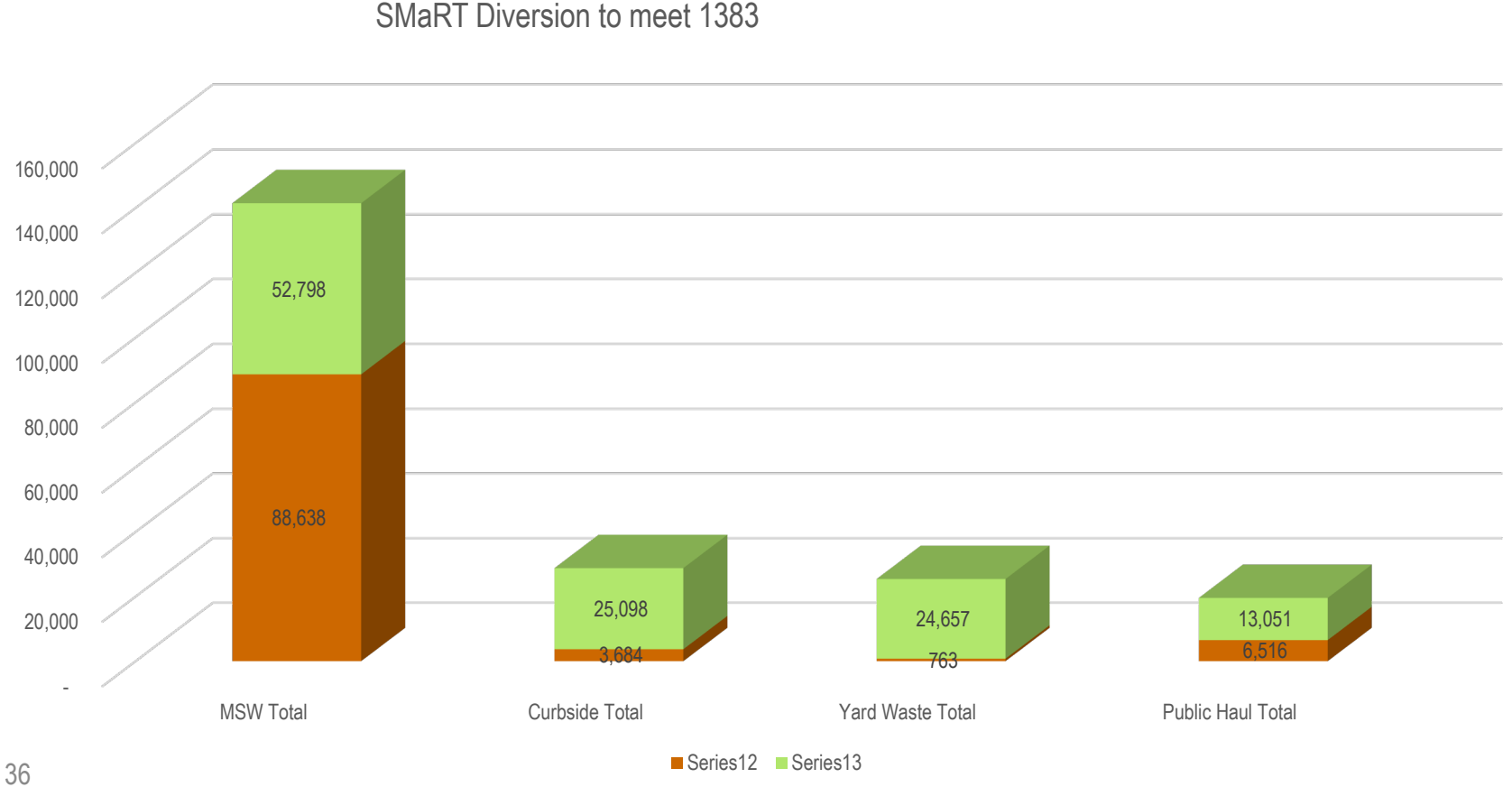
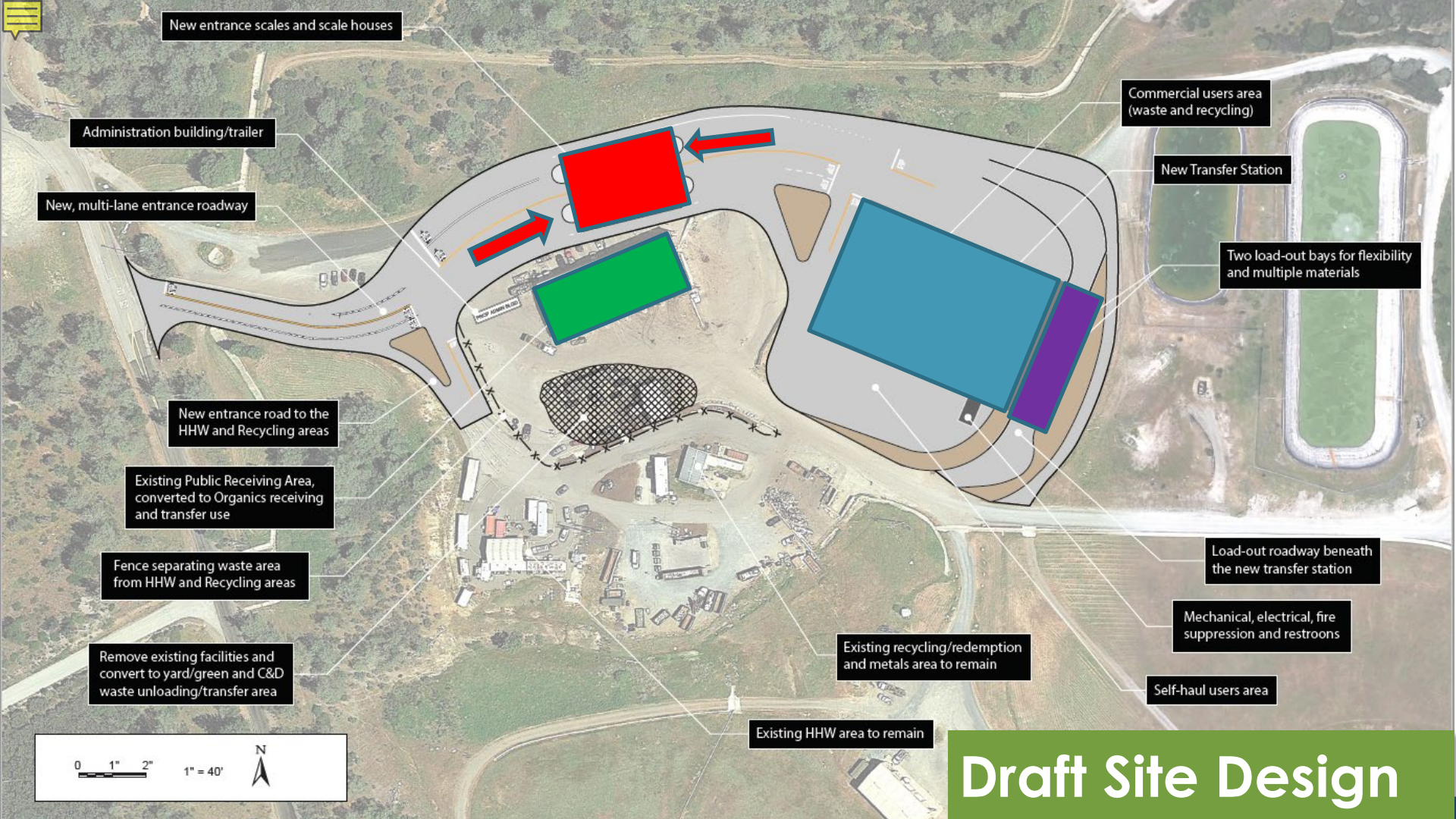
SMaRT Diversion - Status Quo



SMaRT Diversion needed to meet ZWG/1383

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Draft Site Design