



THE CHALLENGE OF GOING **GREEN** AND BEYOND

Presented by
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Green and Beyond

- Design a functional solid waste facility with Green Design features
- Seek to attain LEED® Certified Facility under US Green Building Council
- Build a facility that is a community symbol to reduce waste, recycle, and promote a way of life to improve our environment

South Bayside Waste Management Authority (SBWMA)



Shoreway
Environmental
Center in
San Carlos, CA

THE CHALLENGE OF GOING **GREEN** AND BEYOND

Existing SBWMA Transfer Station and MRF



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Proposed Shoreway Environmental Center





INITIAL CHALLENGE: GOING GREEN

SEC - Sustainable Goals

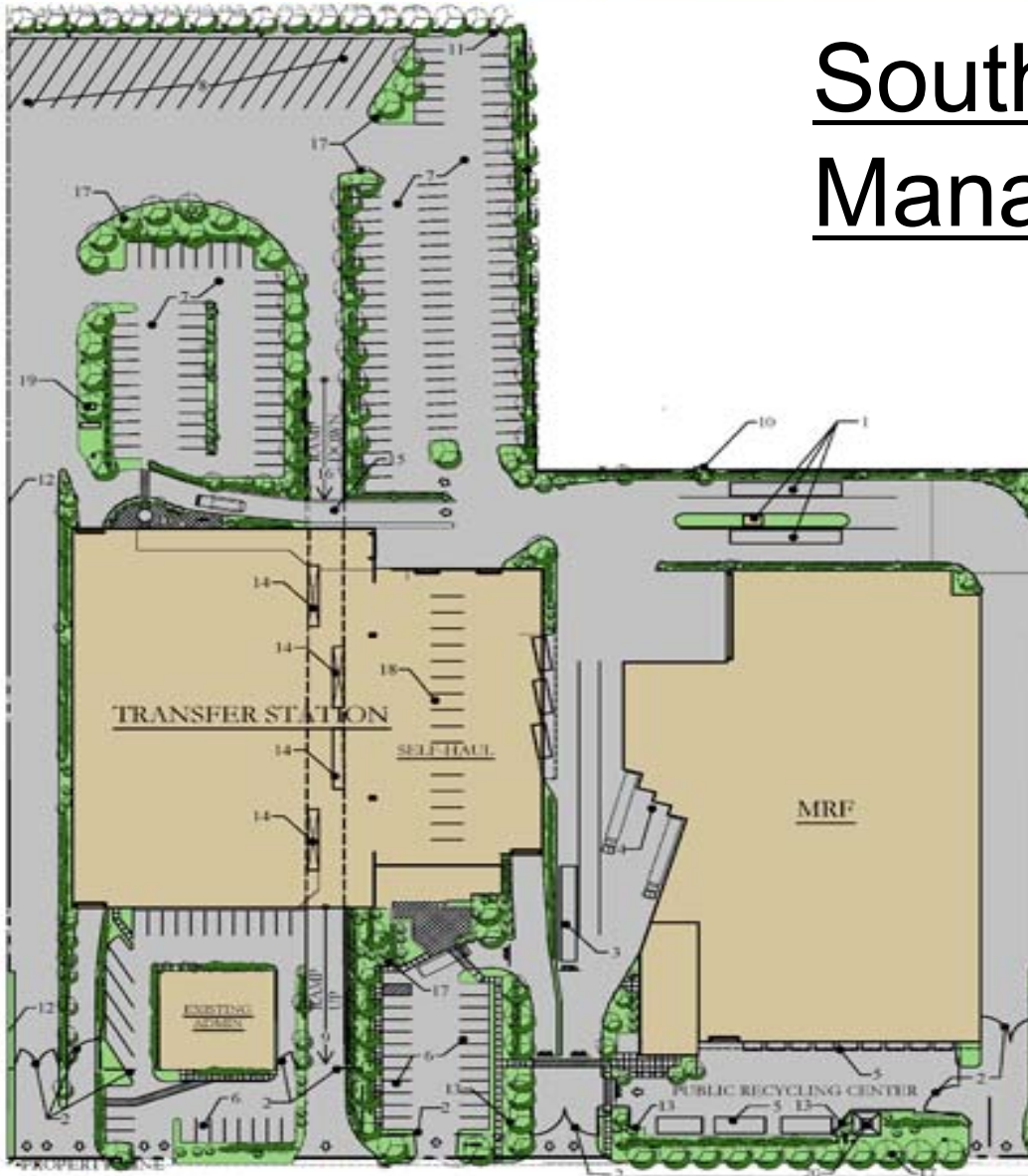
- Minimize environmental impacts using sustainable building measures
- Achieve USGBC LEED® green building certification or equivalency
- Reduce the facility's carbon footprint
- Establish a Community Environmental Education Center

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South Bayside Waste Management Authority

SEC Site Plan

- 23,000 sf TS expansion
- New 70,000 sf single stream MRF
- Increase recovery by 40,000 tpy



Typical TS and MRF Green Design Features

- Recycled content (metal building)
- Natural lighting
- Natural ventilation
- Reuse existing floor slabs
- Storm water reuse



**BEYOND
GREEN:
LEED®
CERTIFICATION**



Leadership in Energy & Environmental Design



- LEED® is a third party certification program and the nationally accepted benchmark for the design, construction and operation of high performance green buildings.

SEC Sustainable Design Approach to LEED®

- Engage LEED® expertise early in project
- Conduct workshops
 - Owner, Design Professionals, Energy Experts, Decision-makers/Elected Officials
- Use LEED® credit categories to develop and adopt green design features
- Evaluate potential for LEED® certification

Certification Totals



Certified 26–32 points



Silver 33–38 points



Gold 39–51 points



Platinum 52–69 points

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LEED® Scorecard

SHOREWAY ENVIRONMENTAL CENTER

as of 12.20.2007

Category	Possible Points	Maybe				Comments	Credit Documentation/ Team Responsibility	Person Responsible	Start Date	Credit Type
		Yes	Likely	Unlikely	No					
EQ 3.2	Construction IAQ Management Plan: Before Occupancy	1				1	n/a			C
EQ 4.1	Low-Emitting Materials: Adhesives & Sealants	1	1				Contractor			C
EQ 4.2	Low-Emitting Materials: Paints & Coatings	1	1				Contractor			C
EQ 4.3	Low-Emitting Materials: Carpet Systems	1	1				Contractor			C
EQ 4.4	Low-Emitting Materials: Composite Wood & Agrifiber Products	1	1				Contractor			C
EQ 5	Indoor Chemical & Pollutant Source Control	1				1	n/a			C
EQ 6.1	Controllability of Systems: Lighting	1		1			Electrical			D
EQ 6.2	Controllability of Systems: Thermal Comfort	1				1	n/a			D
EQ 7.1	Thermal Comfort: Design	1				1	n/a			D
EQ 7.2	Thermal Comfort: Verification	1				1	n/a			D
EQ 8.1	Daylight & Views: Daylight 75% of Spaces	1	1				Architect			D
EQ 8.2	Daylight & Views: Views for 90% of Spaces	1			1		Architect			D
subtotal:		15	0	1	1	5				
Innovation & Design Process									5 Potential Credits	
ID 1.1	Innovation in Design - Public Education Program	1	1				Team			C/D
ID 1.2	Innovation in Design - 95% Const. Waste Mgmt.	1			1		Contractor			C/D
ID 1.3	Innovation in Design - Exemplary Performance?	1	1				TBD			C/D
ID 1.4	Innovation in Design - Exemplary Performance?	1		1			TBD			C/D
ID 2.0	LEED® Accredited Professional	1	1				TBD			D
subtotal:		5	1	1	1	0				
TOTALS:		69	29	8	8	24				
LIKELY TOTAL: 37							Silver			
NOTE: Likely Total includes yes and likely 'maybes'										
							Certified =	26-32		
							Silver =	33-38		
							Gold =	39-51		
							Platinum =	52-69		

New LEED Online Certification Process: Documentation is submitted via the on-line templates. Instead of sending hard copy.

D Design Credits may be submitted at the end of the Construction Documents Phase, or after Substantial Completion with the Construction Credits.

C Construction Credits are submitted after Substantial Completion

LEED® Credit Categories

- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy & Atmosphere (EA)
- Materials & Resources (MR)
- Indoor Environmental Quality (EQ)
- Innovation & Design Process (ID)

Sustainable Sites (SS)

Example Credits

- Parking for low-emitting, fuel-efficient vehicles
- Storm water management
- Parking for van pools
- Mitigate heat island effect
- Reduce light pollution



Water Efficiency (WE)

Example Credits

- Water-efficient landscaping
- Gray water use
- Water use reduction
20%- low flow fixtures
- Innovative wastewater treatment



Energy & Atmosphere (EA)

Example Credits

- Optimize energy performance
- Photovoltaic panels and/or wind turbines for on-site energy
- Energy-efficient lighting: skylights
- Energy-efficient process equipment
- Renewable energy credits



Materials & Resources (MR)

Example Credits

- High recycled content building materials
- Maximize construction waste recycling –divert from disposal
- Maximize reuse of existing building materials



Indoor Environmental Quality (EQ)

Example Credits

- Natural lighting 75% of spaces
- Low-emitting VOC materials – office spaces / paints & coatings
- Controllability of lighting systems
- Monitor outdoor air quality
- Natural ventilation

Innovation & Design Process (ID)

Example Credits

- Reduce carbon footprint by improving traffic flow, reducing vehicle idle times
- Possible credits for improving equipment efficiencies
- Innovation in construction waste mgmt.
- Onsite environmental education program

LEED® Online: A Collaborative Effort

0 Energy & Atmosphere				Possible Points: 17			
No	EA	Prerequisite 1	C Fundamental Commissioning of the Building Energy Systems	Commissioning Agent	✓	Attempted	0
No	EA	Prerequisite 2	I Minimum Energy Performance	HVAC Engineer	✓	Attempted	0
No	EA	Prerequisite 3	I Fundamental Refrigerant Management	HVAC Engineer	✓	Attempted	0
0	EA	Credit 1	I Optimize Energy Performance	HVAC Engineer	!	Attempted	10
0	EA	Credit 2	I On-Site Renewable Energy	Electrical Engineer	!	Attempted	3
0	EA	Credit 3	C Enhanced Commissioning	Commissioning Agent	✓	Attempted	1
0	EA	Credit 4	I Enhanced Refrigerant Management	HVAC Engineer	!	Attempted	1
0	EA	Credit 5	C Measurement & Verification	HVAC Engineer	!	Attempted	1
0	EA	Credit 6	C Green Power	Architect	✓	Attempted	1

A high-angle, slightly blurred photograph of a busy public square or plaza. The ground is paved with light-colored stone tiles. Numerous people of various ages and ethnicities are walking, standing, and interacting. In the foreground, a man in a white jacket is looking towards a young boy in a dark jacket who is looking up. To the right, a man in a black jacket is pointing towards someone off-camera. The background shows more people, including a man carrying a baby and a woman in a blue jacket. The overall atmosphere is one of a lively, public gathering.

**BEYOND
LEED:
THE
SHOREWAY
ENVIRONMENTAL
CENTER**

SEC - Education Center

Demonstrate ways to:

- Reduce Greenhouse Emissions
- Re-use Waste
- Recycle
- Use Sustainability Design Features



SEC Public Education: Tours

Viewing Gallery

- Observe recovery at transfer station
- Education tour of MRF operation



SEC Public Education: Tours

Exhibit Green Design Features

- Storm water capture and re-use tank
- Translucent light panels
- Solar energy panels



SEC Community Awareness

Exposure

- Tours
- Community meetings
- Special events



Green and Beyond Summary

1. Engage LEED® expertise early in planning / programming process
2. Use LEED® categories to guide Green design process
3. Acquiring LEED® certification will add to design and construction costs – pay off longer term
4. Solid Waste Industry needs to work with US Green Building Council
5. Solid Waste facilities can set a new standard for promoting green design