



# Co-creating a Carbon Conscious Circular Campus

ICAO: Greening Airports

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# SFO by the Numbers

## CY 2018

- 58 Million Annual Passengers
- 13,000,000 sf facilities
- 210,656 landings
- 48 airlines
- 561,806 metric tons cargo

## Direct Economic Impact

- \$8.4 Billion in business activity
- 42,800 jobs

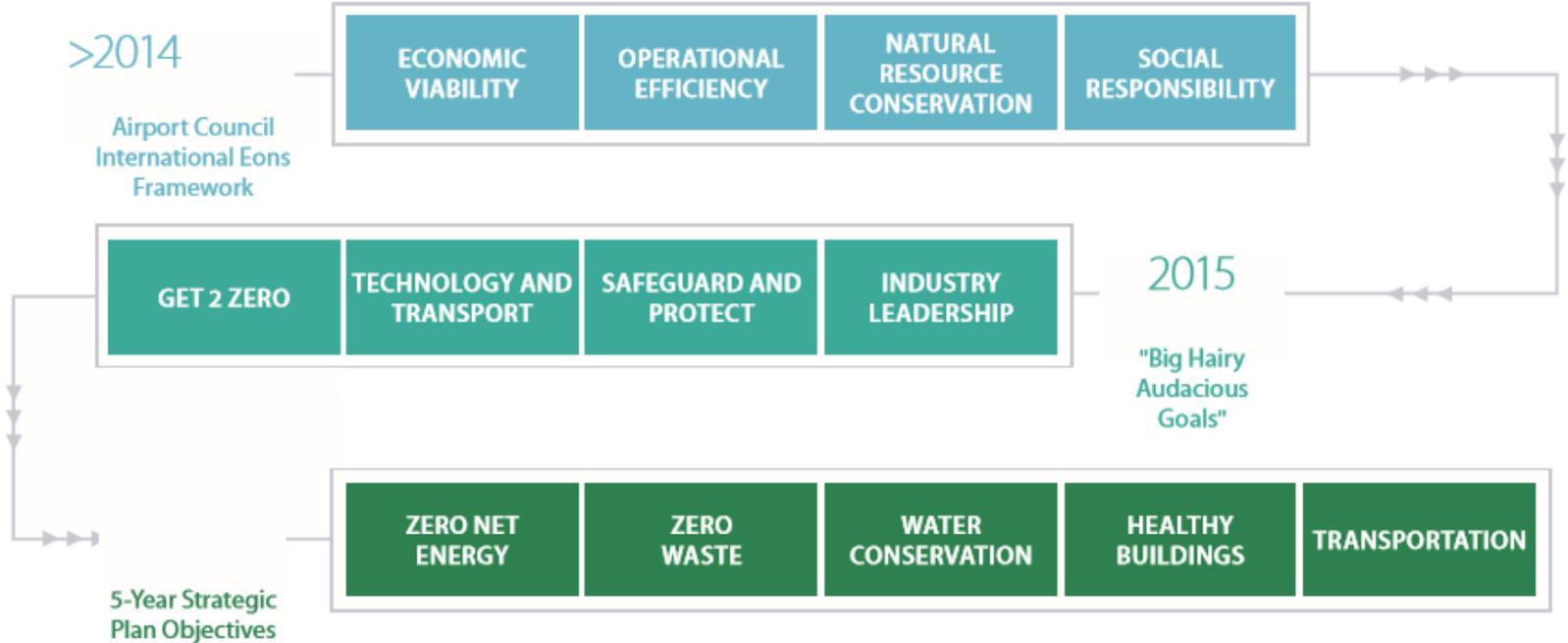
## Land Use

- 5,200 acres total area
- 2,700 acres (Operational use)
- 2,500 acres (Natural tidelands and undeveloped land)

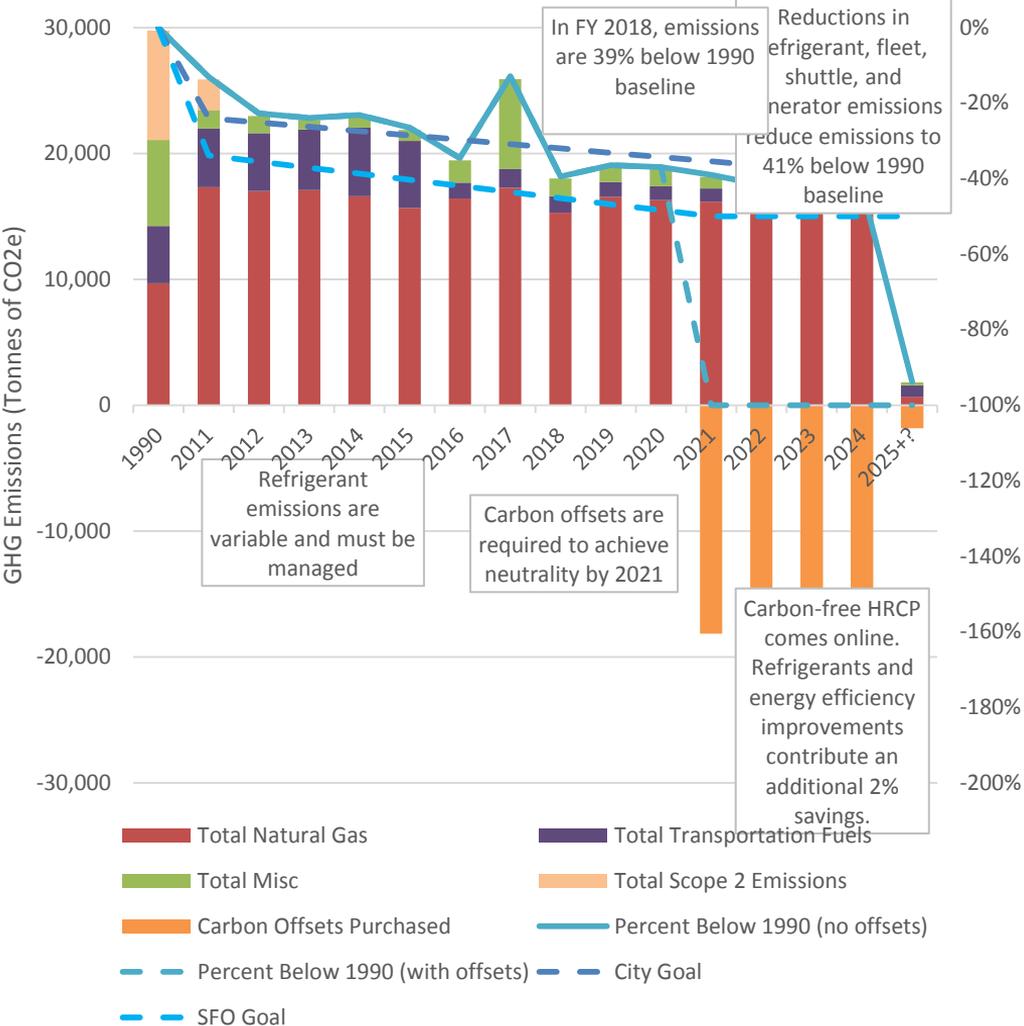


# Set a Bold Goal

## FROM VISION TO ACTION



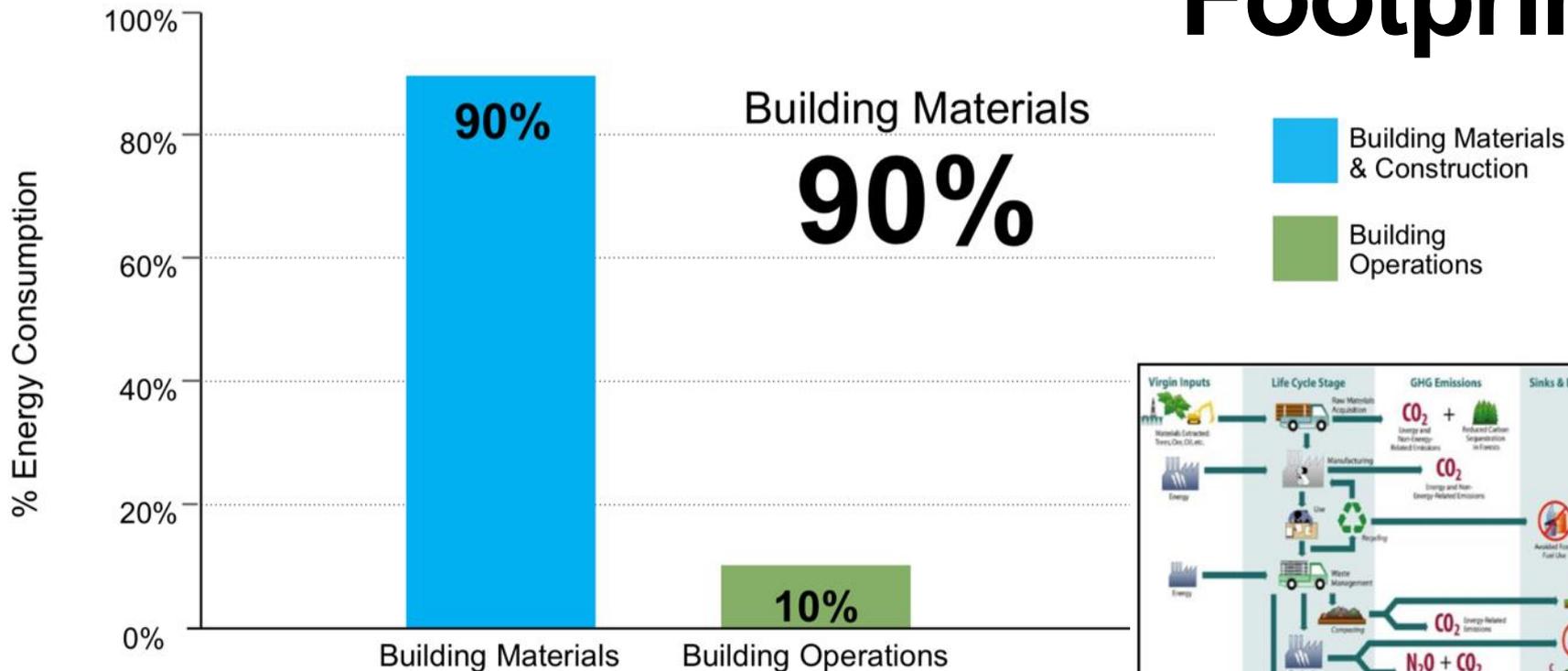
# Sector vs. Source



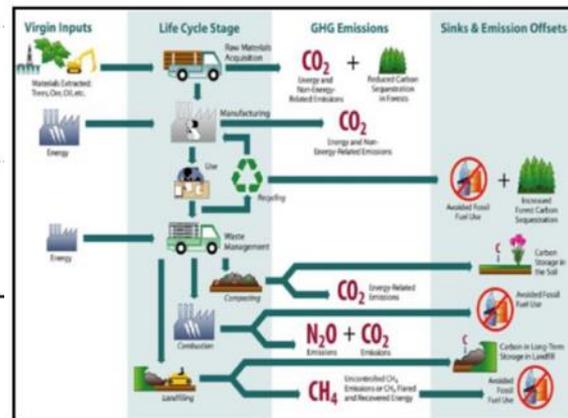
Two Trillion Square Feet

## Energy Consumption Footprint: 2015-2050

# Fully Footprint



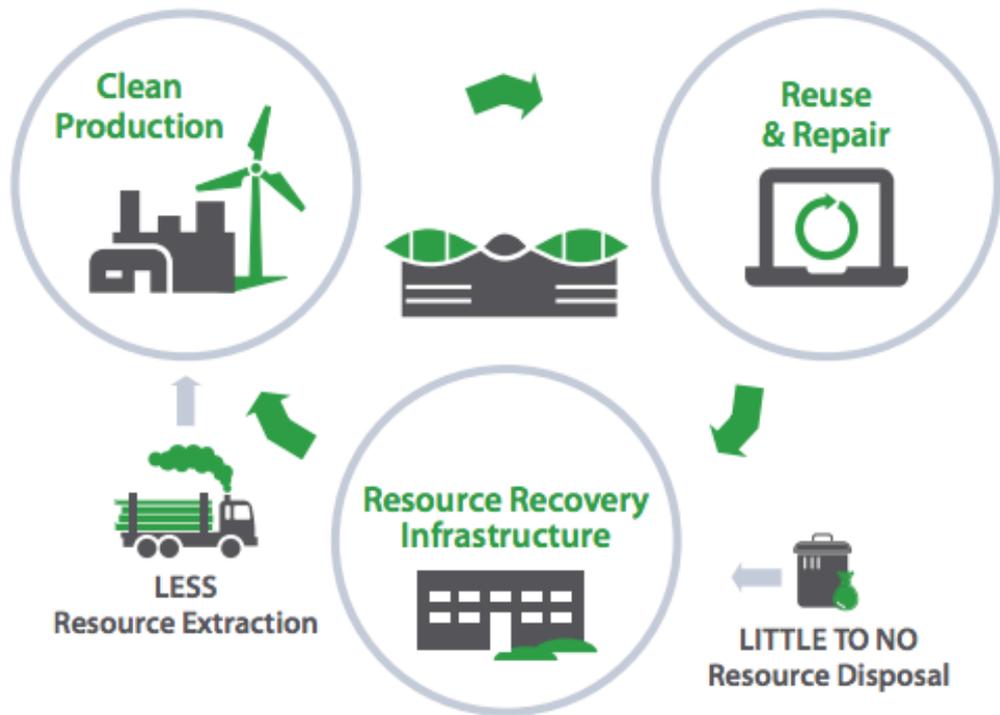
Source: © 2016 2030, Inc. / Architecture 2030. All Rights Reserved.  
Data Source: EIA (2011), Richard Stein, CBECS (2003), McKinsey Global Institute



EPA's Waste Reduction Model Material Life Cycle

# Roadmap

## CIRCULAR ECONOMY (Fig 2)



### OUR GOAL

San Francisco International Airport (SFO) has set a goal of becoming the world's **first zero waste airport** by 2021. The zero waste goal, as defined by the Zero Waste Alliance, is to divert at least 90% of waste from landfills and incinerators using methods like recycling and composting.



**Pilot +  
Demonstrate.  
Then Specify**



## Design

Specs + Bid  
Packages

## Comply

Drawings +  
Site Visits

## Perform

SoFi  
TBL- CBA

## Certify

LEED +  
WELL



# Whole Building LCA

## Material Selection

- Building
- Interiors
- Furniture

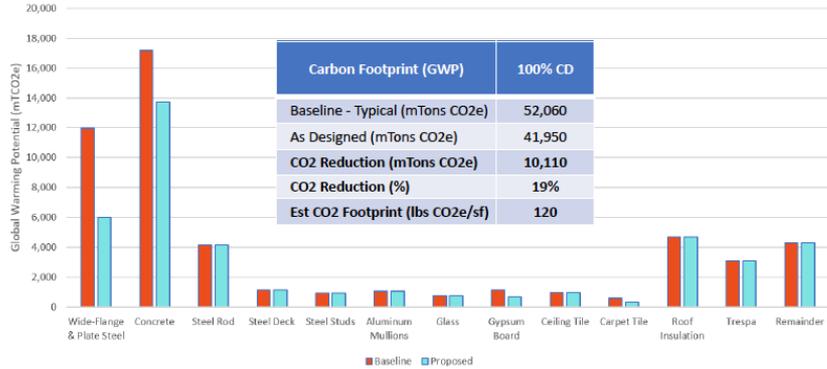
## Special Systems

- Baggage Handling
- Passenger Boarding  
Bridges

**Highlights:**

- Concrete + steel = >60% of project carbon footprint
- Specified concrete + steel = ~20% carbon footprint (GWP reduction)
- Started tracking construction performance

Baseline vs. Proposed GWP Per Product Category



# Use Scale to deliver

**Highlights:**

- TR117 compliant w/o added flame retardants
- PVC components <1%
- No added fluorinated compounds
- Helped develop lounge furniture Product Category Rules (PCR) to create EPD
- Variety of seating to serve wide ranging ergonomic needs
- Low VOC concentrations
- HPD/Ingredient Disclosure



**Baggage Handling System (BHS):**

- Project EPD
- Totes HPD
- Energy reduction = ~50%
- Reduced material use
- ICS represents ~6% of carbon footprint of project

**ENVIRONMENTAL PRODUCT DECLARATION**  
**INDIVIDUAL CARRIER SYSTEM**  
 INDIVIDUAL CARRIER, BAGGAGE HANDLING SYSTEM

**BEUMER GROUP**

BEUMER Group is an international manufacturing leader in integration in the field of conveyor, sorting, packaging, weighing, and distribution technology. For us, sustainability means a balance between environmental friendliness, economic success, and social responsibility. Energy efficiency, environmental responsibility, and safe production and product design are just as important as avoiding accidents and other health risks.

For more information visit [www.beumergroup.com](http://www.beumergroup.com)

**Passenger Boarding Bridges (PBB):**

- Working with supplier to publish

# TENANT IMPROVEMENT CASE STUDY

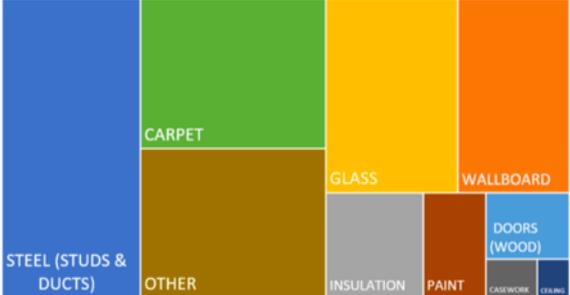
## IMPROVING PERFORMANCE THROUGH EMBODIED CARBON DRAWDOWN

# Better Base Buildings Better TIs

BASELINE SCENARIO



FINAL DESIGN  
43% CO2e REDUCTION!



Source: Gensler



# TURN YOUR DISHES INTO DAISIES

All to-go food service ware and cutlery can be composted!

LOOK FOR THE GREEN STRIPE & COMPOSTABLE LABEL!



# SFO

UNITES AGAINST HUNGER



# Better TIs Stronger Partners





**Thank  
you.**



Source: <https://www.thewisetraveller.com/Articles/view/?permalink=trash-in-flight>

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