

SFO's JOURNEY TO ZERO: 2016 to 2030

Zero Annual Report Background

SFO is halfway through its journey to be the first airport in the world to achieve “triple zero” - zero net energy facilities, zero net carbon operations, and zero waste going to landfill. Additionally, SFO has goals to enhance healthy indoor environments and decrease water use by 2030. SFO launched these bold environmental strategic goals in 2016¹ with updates in 2021² as part of our mid-pandemic Recovery to Resilience Plan. To hold our organization accountable for meeting important milestones, SFO publishes the Zero Annual Report.

Explore SFO's triple bottom line (environmental, social and financial) initiatives and significant progress towards our 2030 goals in this 2022 Zero Annual Report.



2016
Set Bold
Zero Goals¹



2021
Adopted Recovery
to Resilience
Strategic Goals²



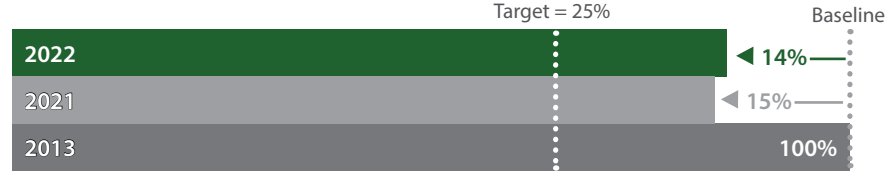


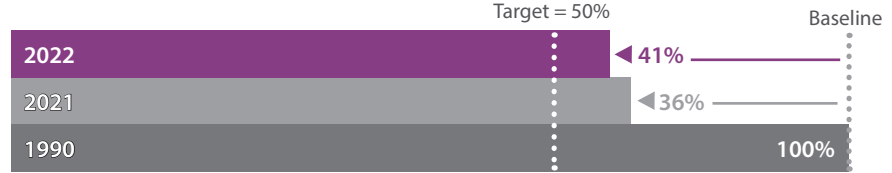


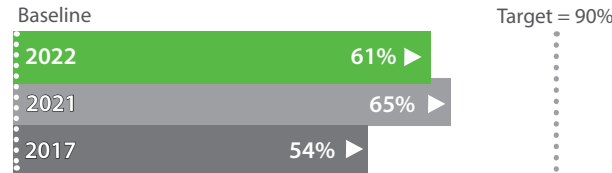

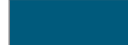
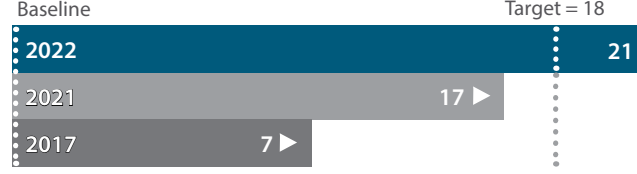


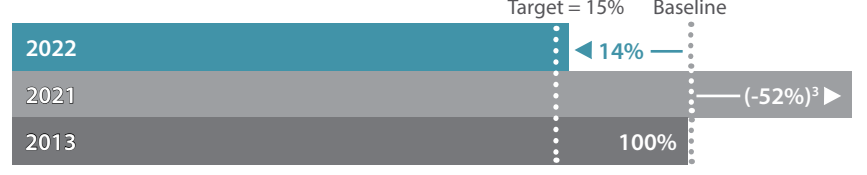


¹ SFO Five-year Strategic Plan 2017-2021

² SFO Interim Strategic Plan: COVID-19 Recovery to Resilience Framework 2020-2023

2022 ZERO ANNUAL REPORT



TARGET	% COMPLETE	ZERO PROGRAM PROGRESS	ANNUAL PROGRESS (2022 vs 2021)
 <p>Zero Net Energy Reduce energy consumption 25% below 2013 Units: percent</p>	<p>55%</p>  <p>14% reduction of 25% target achieved</p>		<p>1% increase energy use increase use²</p>
 <p>Zero Net Carbon Reduce scope 1 & 2 GHG emissions by 50% from 1990 Units: percent</p>	<p>83%</p>  <p>41% reduction of 50% target achieved</p>		<p>5% decrease in carbon emissions</p>
 <p>Zero Waste Divert 90% of terminal waste from landfill each year Units: percent</p>	<p>68%</p>  <p>61% reduction of 90% target achieved</p>		<p>4% decrease in the waste diversion rate (recycling and composting)</p>
 <p>Green Buildings¹ Certify 18 eligible projects from 2017 Units: Green Building Cert.</p>	<p>100%</p>  <p>21 certifications of 18 target achieved</p>		<p>3 Green Building Certifications + 1 LEED for Communities: Existing achieved</p>
 <p>Water Conservation Achieve 15% reduction per passenger per year from 2013 Units: percent</p>	<p>93%</p>  <p>14% reduction of 15% target achieved</p>		<p>66% decrease in water use per passenger</p>

¹"Green Buildings" category was previously called target "Healthy Buildings." ²Energy consumption increased because Passenger Traffic has increased 74% compared to 2021. ³2021 water use per passenger exceeded 2013 baseline primarily due to 2021 passenger traffic down 46% from 2013.

ZERO NET ENERGY - 2022

Target: Reduce energy consumption 25% below 2013

2022 ACCOMPLISHMENTS

- 1 Distributed Energy Resources (DER):** Completed a DER study that identified 95 sites totaling 50 MW of new solar generation capacity. Submitted FAA grant for 1.4MW of solar on the International Terminal.
- 2 Utility Metering:** Linked 68 electric and 127 natural gas building meters to Energy Star Portfolio Manager for green building compliance reporting.
- 3 Energy Management and Control System (EMCS):** Reactivated EMCS in terminal spaces to centrally connect and upgrade building management systems estimated to save \$1.5M/yr.
- 4 Lighting Improvements:** Completed LED upgrades with 1,680 new lamps to SFO BART Station saving \$48,000/yr.
- 5 Infrastructure:** Issued Infrastructure Modernization Plan support services RFP. Completed Electrical Capacity Upgrade evaluation to model future electrical demand through 2065.

2023 GOALS

- 1 Distributed Energy Resources (DER):** Examine procurement, operations and maintenance options that ensure high performance assets and minimize total cost of ownership for campus solar and electric vehicle charging. Develop and test Demand Response Plan.
- 2 Sustainability Dashboard:** Create a new sustainability dashboard with key metrics across zero net energy, zero net carbon, zero waste, water, health and well-being categories.
- 3 Energy Management and Control System (EMCS):** Support EMCS implementation with measurement and verification for terminal energy savings measures.
- 4 Infrastructure:** Support medium voltage 12kV study to upgrade electrical infrastructure to enable airport-wide electrification. Submit electric Central Utility Plant project for environmental review.
- 5 Revolving Loan Fund (RLF):** Advance RLF as a potential way to fund future utility and decarbonization projects.

Overall Status:

14% reduction of 25% target achieved



Annual Progress (2022 vs 2021):

1% increase in energy use¹

Recovery to Resilience Plan Metrics for 2022

4

Number of power disruptions

6.4%

Percent planned spend rate for aging infrastructure

¹Energy consumption increased because Passenger Traffic has increased 74% compared to 2021.

ZERO NET CARBON - 2022

Target: Reduce scope 1 & 2 GHG emissions by 50% from 1990

2022 ACCOMPLISHMENTS

- 1 Certification:** Achieved Level 4 Airport Carbon Accreditation, a first for large-hub airports in North America.
- 2 Electric Vehicle (EV) Planning:** Completed long-term EV/electric ground support equipment (eGSE) charging and load management study that estimated 132-155MW future demand needs for 33,717 parking stalls.
- 3 Electric Vehicles and Chargers:** Issued RFI to install 14 direct current fast chargers (DCFC). Upgraded 12 employee chargers to have load management capability. Submitted grant for five additional electric buses.
- 4 Natural Gas Equipment Inventory:** Inventoried 230 pieces of natural gas equipment for campus electrification strategy and compliance.
- 5 CA Low Carbon Fuel Standard (LCFS):** Registered AirTrain and 119 EV Charging stations under the LCFS program to generate \$225,000/yr in new airport revenue.
- 6 Sustainable Aviation Fuel (SAF):** Supported airline use of 11 million gallons of SAF.
- 7 Award:** Received 2022 Outstanding Sustainability Program for SFO's Electrification Action Plan for Existing Buildings.

2023 GOALS

- 1 Zero Carbon Plan:** Develop an implementation plan and corresponding targets to achieve SFO's strategic 2030 zero net carbon goal and support tenants in achieving Scope 3 emissions reductions.
- 2 Environmental Reporting:** Develop an SFO framework for industry-aligned Environmental, Social and Governance (ESG) reporting.
- 3 Electric Vehicle Chargers:** Issue RFP and select developer to install 14 DCFCs for public use. Install 20 EV chargers in International Garage A.
- 4 Airside Electrification:** Develop an eGSE implementation plan and policy to accelerate GSE electrification in partnership with airlines and ground handlers.
- 5 Building Electrification:** Determine electrical capacity required for electrification of Harvey Milk Terminal 1 & Terminal 2 food and beverage tenants.
- 6 Low Carbon Fuel Standard:** Generate LCFS credits from EV chargers and Airtrain to fund new transportation electrification projects.
- 7 Sustainable Aviation Fuel (SAF):** Update [SAF Feasibility Study](#). Advocate for SAF incentives in CA.

Overall Status:
41% reduction of 50% target achieved



Annual Progress (2022 vs 2021):
5% decrease in carbon emissions

Recovery to Resilience Plan Metrics for 2022

2%
Percent Sustainable Aviation Fuel vs Total Fuel use

13%
Percent of all shuttle vehicle miles traveled were electric

ZERO WASTE - 2022

Target: Divert 90% of terminal and operations waste from landfill each year

2022 ACCOMPLISHMENTS

- 1 Zero Waste Strategy:** Completed RFP and awarded scope to update SFO's [Zero Waste Plan](#).
- 2 Plastic-Free Compliance:** Achieved 91% plastic-free food ware/accessories and 96% plastic-free beverage compliance for Retail and Food & Beverage tenants.
- 3 Award:** Received 2022 Honorable Mention for SFO's Zero Waste Concessions from Airports Going Green.
- 4 Food Donation Program:** Rescued 10,663 lbs of food (8,886 meals) from landfill that were donated to local food banks and shelters.
- 5 Construction/Demolition Debris:** Obtained 96% material diversion from landfill for SFO construction projects.
- 6 Food Ware Expo:** Hosted Food Ware Expo event featuring seven natural fiber food ware vendors to support tenant transition to these fully compostable products as to be required by forthcoming airport policy.

2023 GOALS

- 1 Zero Waste Strategy:** Release an updated Zero Waste Plan that outlines accomplishments, summarizes current programs, and timelines SFO's next high impact initiatives to achieve 90% material diversion from landfill.
- 2 Plastic-Free Compliance:** Achieve 100% compliance with Plastic-free Zero Waste Concessions Program for food ware, accessories, and beverages for terminal tenants. Train 100% SFO custodians and tenants on zero waste practices and requirements.
- 3 Food Donation Program:** Enroll 100% of Food and beverage concessionaires in the program and recover 13,800 lbs of food (11,500 meals) for donation in 2023 to those who are food insecure.
- 4 Reusable Food Ware Pilot:** Issue Request for Information to help inform SFO's pilot program development. Advance Capital Improvement Project to install necessary equipment in the terminals.
- 5 Construction/Demolition Debris:** Aim for 95% minimum material diversion from landfill for all SFO construction projects.
- 6 Waste to Energy:** Complete a study to assess onsite capture of organics to biodigest at Mel Leong Treatment Plant. Finalize grease contract to divert to sustainable aviation fuel production.

Overall Status:

61% reduction of 90% target achieved



Annual Progress (2022 vs 2021):

4% decrease in the waste diversion rate (recycling and composting)

Recovery to Resilience Plan Metrics for 2022

In Progress

create a roadmap for a circular airport for all materials

GREEN BUILDING CERTIFICATIONS¹ - 2022

Target: Implement a healthy buildings strategy for new and existing infrastructure and certify 18 eligible projects from 2017

2022 ACCOMPLISHMENTS

- 1 Platinum Certifications:** Achieved LEED v4/4.1 BD+C Platinum and WELL Building Standard Core v2 Pilot Platinum for Harvey Milk Terminal Boarding Area B. Achieved LEED for Communities Existing v4.1 Platinum certification campus-wide.
- 2 Sustainability Standards:** Trained 80 staff on [SFO Sustainable Planning, Design & Construction Standards](#) for new construction and major renovations outlining mandatory requirements and performance goals. Updated corresponding contract document sections.
- 3 Awards:** Received 2022 Outstanding Sustainability Infrastructure Development for Harvey Milk Terminal 1 and Honorable Mention for SFO Planning and Design Guidelines at Airports Going Green.
- 4 Air Quality (AQ):** Completed AQ Framework Phase 1 and tested indoor and outdoor AQ sensors. Began AQ Framework Phase 2 that will develop a plan to measure and manage indoor air quality.
- 5 Resiliency:** Developed SFO's Infrastructure Resilience Framework outlining steps needed to protect critical utility assets from climate and geologic hazard events.

2023 GOALS

- 1 Certifications:** Select at least one horizontal infrastructure project to test the use of ISI Envision Certification.
- 2 Standards:** Update Sustainability Standards to include air quality requirements. Initiate the development of SFO Resilience and Adaptation Standards for SFO Facilities and Infrastructure.
- 3 Air Quality (AQ):** Complete AQ Framework Phase 2 that outlines key steps to monitor, measure and manage outdoor and indoor air quality across campus.
- 4 Resiliency:** Convene Resilience working group to prioritize airport assets and operations based upon criticality. Assess the hazards, shocks and stressors to these assets and operations to define airport vulnerabilities, risks and mitigations working with the Information Modernization Plan team.
- 5 Innovation:** Research decarbonization of building products and the circular product economy and connect these findings to the airport's waste diversion and GHG reporting efforts. Launch Smart Surfaces Study to identify alternative paving and roof materials that can reduce SFO's heat gain and improve worker health and experience.

Overall Status:
21 certifications of
18 target achieved



**Annual Progress
(2022 vs 2021):**
3 Green Building
Certifications + **1** LEED
for Communities:
Existing achieved

¹"Green Building Certifications" used to be called "Healthy Buildings in 2021 Zero Annual Report."

WATER CONSERVATION - 2022

Target: Achieve 15% reduction per passenger per year from 2013

2022 ACCOMPLISHMENTS

- 1 Leak Detection:** Detected and fixed three major leaks saving 7.9 million gallons of water.
- 2 Water Assessments:** Conducted water audits to evaluate potential leakage, flow rates and fixture upgrades for 31 tenants and restrooms in International Terminal
- 3 Utility Metering:** Linked 187 building water meters to Energy Star Portfolio Manager for compliance reporting.
- 4 Water Meter Upgrades:** Upgraded 19 analog meters to smart meters throughout Boarding Area E and at various restaurants.
- 5 Water Quality Sampling Stations:** Expanded routine sampling stations throughout SFO campus to maximize water quality.

2023 GOALS

- 1 Leak Detection:** Resolve loss in software connectivity by upgrading 75 access points to 5G network. Allocate fiscal funding to support with leak detection initiatives.
- 2 Pressure Sensors:** Install eight pressure sensors to better monitor the water distribution system.
- 3 Advanced Water Treatment Plant (AWTP):** Secure grant and internal funding to support recycled water initiatives. Issue RFP for AWTP construction and distribution of recycled water.
- 4 Water Meter Upgrades:** Upgrade at least 100 analog water meters to smart meters, and integrate smart meters to Energy Star Portfolio Manager.

Overall Status:

14% reduction of 15% target achieved



Annual Progress (2022 vs 2021):

66% decrease in water use per passenger

Recovery to Resilience Plan Metrics for 2022

10

Number of water disruptions

20%

Percent total campus water reduction from 2013