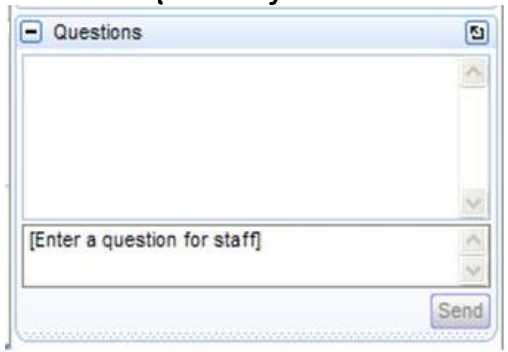
Creating Sustainability at Airports

John Galloway, San Francisco International Airport
Tom Green, Seattle-Tacoma International Airport
Katie Lamond, The Port Authority of New York & New Jersey
Stephanie Meyn, Seattle-Tacoma International Airport
Chad Reese, San Diego County Regional Airport Authority
Erik Herzog, EPA

June 5, 2019

Webinar Housekeeping

- Today's webinar is being recorded.
- Attendees phone lines are muted to preserve audio quality.
- Submit a question via the Questions box on your GoTo control panel.



- After the presentation, as time permits, our EPA presenters will answer questions submitted via the Questions box.
- Please complete the survey at the end of today's webinar. Your feedback is important to us!

- Air freight is the fastest growing mode in goods movement.
- Worldwide, aviation accounts for about two percent of global greenhouse gas emissions,
- with emissions expected to grow at about three to four percent per year.

What is Being Done to Reduce Aviation Emissions?

- ICAO has launched a three-pronged effort to reduce aviation's net carbon emissions to zero by 2050
  - New Aircraft Standards
  - A Market Based Trading Program (CORSIA)
  - Operational Improvements

- In addition to the aircraft, many other aspects of airport operations can impact the environment:
  - Electricity consumption
  - Ground transportation
  - Ground support operations for aircraft
  - Fuel tank farms

How Are Airports Getting Involved?

- ACI's Airport Carbon Accreditation Program provides a common, worldwide framework for airports to:
  - Measure their carbon footprints
  - Take measures to reduce their carbon footprints
  - Engage third parties at and around the airport to measure and reduce their carbon footprints as well
  - Achieve carbon neutrality through carbon reductions and offsets
- 93 Airports worldwide, 11 in North America have been accredited

- Today we will hear from 4 Experts overseeing sustainability programs at U.S. Airports

John Galloway -- SFO Carbon Neutral Airport Program Manager, San Francisco International Airport

John oversees SFO's greenhouse gas reporting, policy, and reduction projects and leads a study on distributed energy and microgrids. He previously managed a group at PG&E connecting large-scale renewable energy power plants to the grid. He has developed action plans for energy and waste reduction, sustainability, and greenhouse gas management for private companies and Federal and municipal agencies, including the Federal Aviation Administration as an operating unit of the U.S. Department of Transportation.

Tom Green – Senior Manager, Air Cargo Operations and Development, Seattle-Tacoma International Airport

Tom Green is the Senior Manager for Air Cargo Operations and Development at Seattle-Tacoma International Airport, owned and operated by the Port of Seattle. In this role, Tom is responsible for all facets of the air cargo program at Sea-Tac Airport, from airfield cargo operations to the development of new and expanded air cargo routes and frequencies, *and* for the operation and development of related airport cargo facilities. He leads a very lean team consisting of an Air Cargo Operations Manager, and an Air Cargo Facilities Manager, and reports to the airport's Director of Operations.

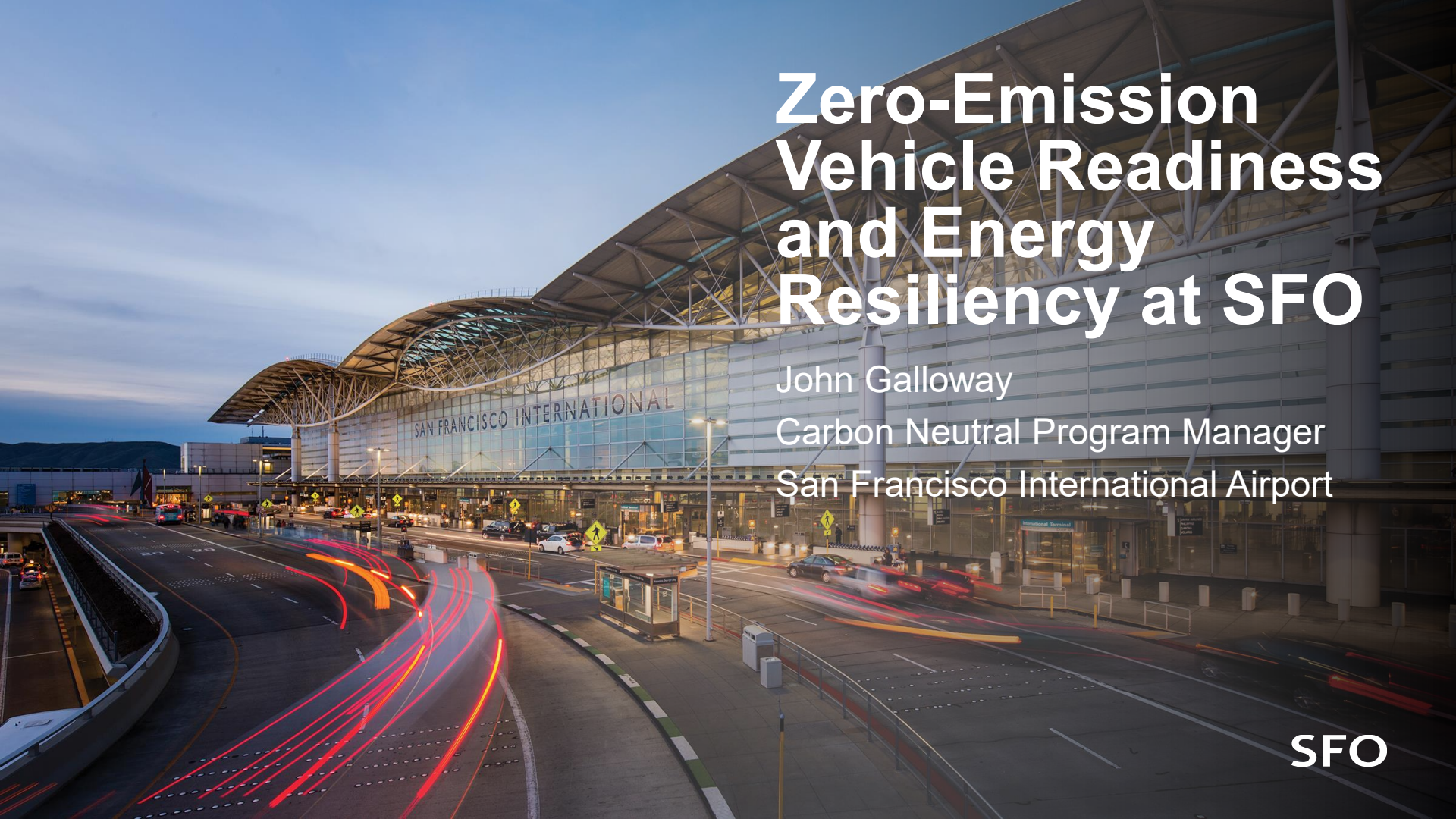
Tom has been with the Port of Seattle for 18 years, from Corporate Finance to Aviation Business Development, and in Aviation Operations since 2008. Tom has Bachelor's degrees in Economics, and Biology, from the University of Texas at Austin, and a Master's Degree from the University of Washington.

Katie Lamond -- Manager, JFK Environmental Programs at The Port Authority of New York & New Jersey

Kathryn Lamond is an Environmental and Sustainability Specialist at the Port Authority of New York and New Jersey. She supports the NEPA, environmental compliance, and sustainability programs for the five airports within the PANYNJ Aviation Department network.

Chad Reese – Environmental Affairs Manager, San Diego County Regional Airport Authority

Chad Reese is an Environmental Affairs Manager at the San Diego County Regional Airport Authority, the agency that manages the day-to-day operations of San Diego International Airport (SAN). As the sustainability program area lead at the Airport, Chad contributes to energy efficiency and renewable energy capital projects, waste reduction initiatives, clean transportation policy and projects, and behavior change programs including the Airport's new "SAN Green Concessions Program" (a green business program specifically designed for Airport concessions tenants). Chad also manages "The Good Traveler" carbon offset program developed by the Airport, and is responsible for annual greenhouse gas emissions inventories and certification via Airport Council International's "Airport Carbon Accreditation" program.

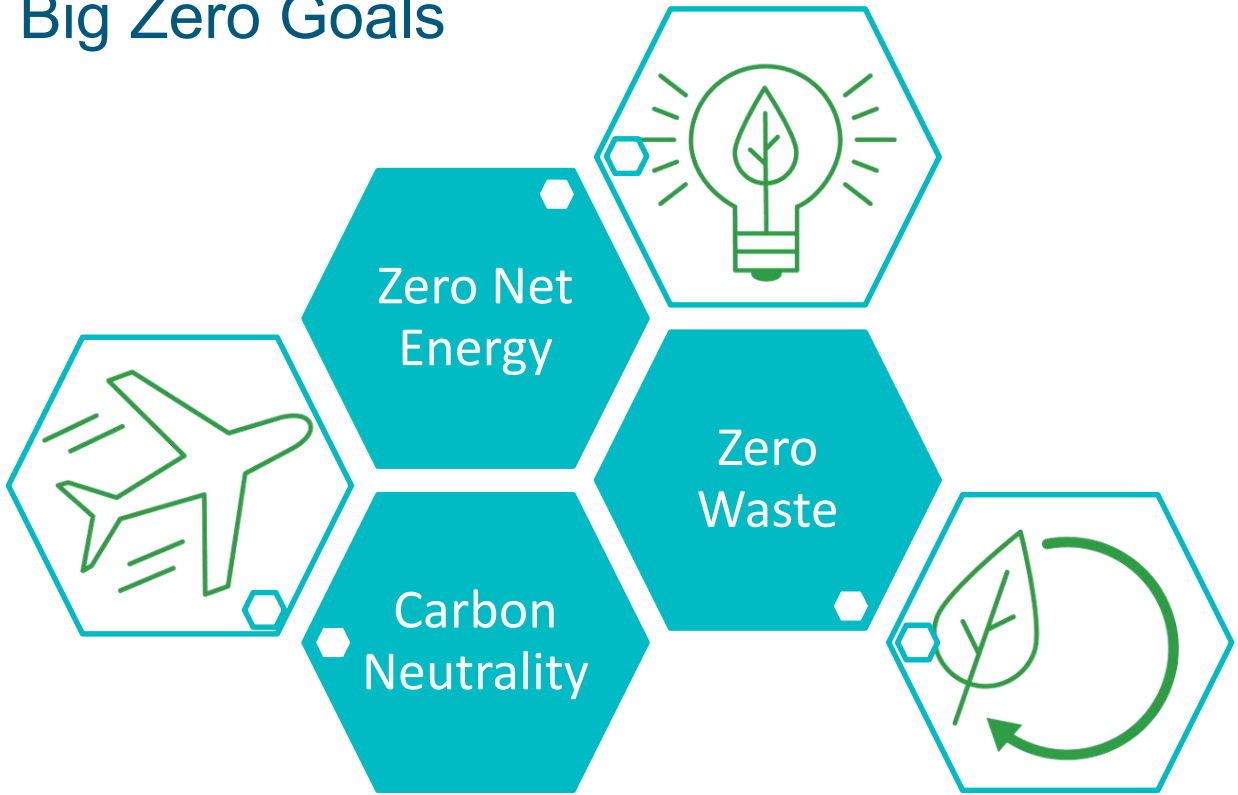


Zero-Emission Vehicle Readiness and Energy Resiliency at SFO

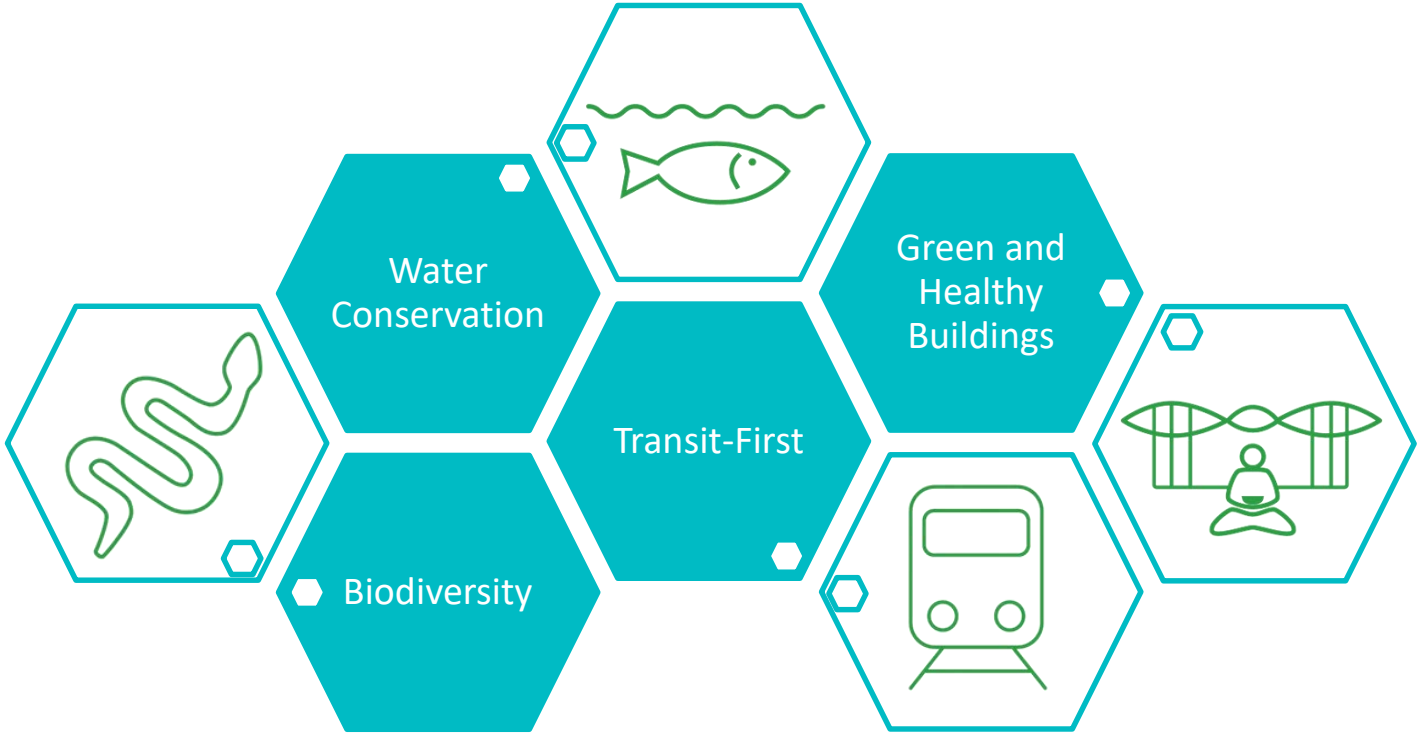
John Galloway
Carbon Neutral Program Manager
San Francisco International Airport

SFO

SFO's Big Zero Goals

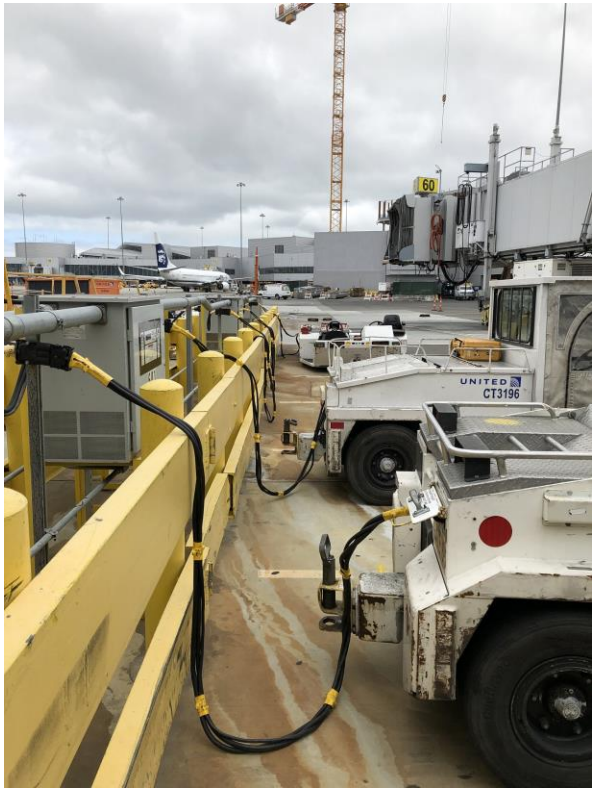


SFO's Additional Goals



ZEV Readiness & Transit First

Electrification of Planes and Ground Support Equipment



Distributed Energy Resources & Decarbonization

Partnerships

Thank you!

SUSTAINABILITY MEASURES AT SEATTLE-TACOMA INT'L AIRPORT

Port of Seattle®

Tom Green
Sr. Manager, Air Cargo
Operations and Development

Stephanie Meyn
Climate Protection
Program Manager

SEATTLE-TACOMA INTERNATIONAL AIRPORT

Port of Seattle

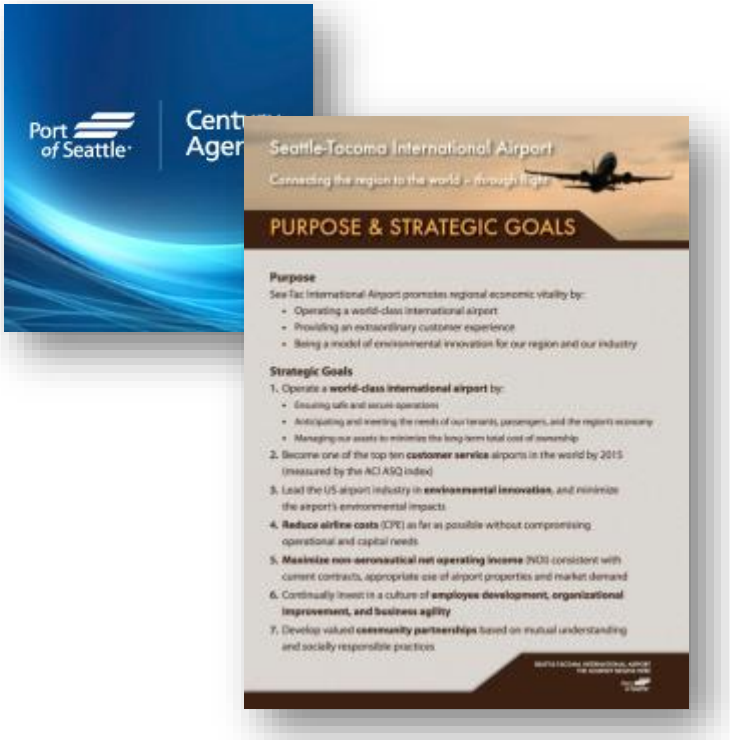
Fast Growing Large Hub Airport

- 8th busiest in the U.S.
- 49.8 Million Passengers (2018)
- 432,315 Metric Tons Cargo
- 150,000+ Jobs

Current Projects:

- Expansion of North Satellite Terminal
- International Arrivals Facility
- Sustainable Airport Master Plan

Competing Priorities at Port of Seattle



"Meet all increased energy needs through conservation and renewable sources."

"Reduce Scope 3 emissions by 50 percent below 2007 levels by 2030."

"Triple air cargo volume to 750,000 metric tons."

Sustainability Focus Areas

- Carbon Reduction
- Energy
- Transportation (landside)
- Climate Adaptation
- Water Quality
- Water Conservation
- Social Responsibility
- Economic Sustainability
- Air pollution
- Green Buildings
- Waste
  - Construction waste
  - Hazardous waste
  - Terminal and airfield waste
- Fish and Wildlife
- Noise

Measuring Sustainability at SEA

- What's directly in our control is relatively easy to measure
- Challenge to obtain sustainability metrics for activities related to airport but not within our control
  - Solutions include modeling, partnering to obtain data, or using third party, etc

Measuring Landside Vehicle Activity

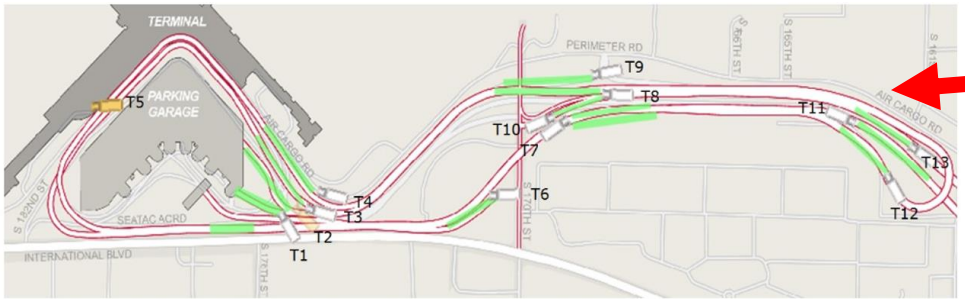
Vehicle Types Measured

- *Pick-up* taxis, limos, shuttles, etc measured with RFID-type tags
- TNC drop-off and pick-up activity data collected via app
- Rental cars, bus trips

Camera Data

- Captures vehicle counts on drives/curbside but doesn't distinguish type – *opportunity for AI/machine learning?*

Roadway Camera views



Air Cargo Road not captured

Sustainability Measures for Air Cargo

- As a “landlord” to air cargo operations, activity is not directly under our control, and thus difficult to measure
- Airfield infrastructure upgrades (in-ground power) have reduced fuel use and related emissions, but hard to quantify
- On the landside, amount of air cargo related trucking has increased along with growth in flown tonnage
- Efforts to analyze trucking congestion identified difficulty in tracking and measuring activity among commercial operators

What We're Currently Working On

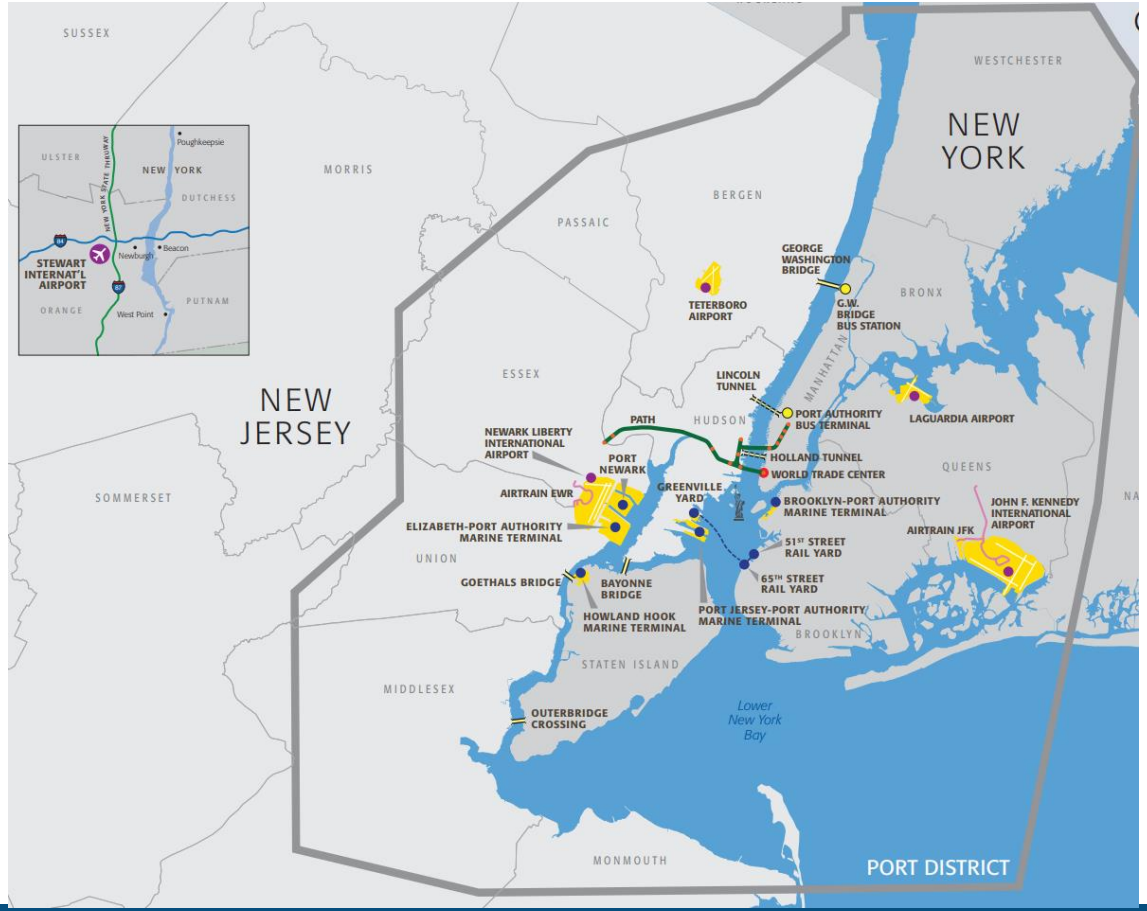
- More complete sustainability integration into our Capital Project Planning & Approval process
- "LEAN" for process improvement in air cargo trucking
- Exploring more third-party sustainability measurement systems (cameras, app-based, etc)
- Expanded social sustainability programs such as diversity in contracting
- Expanded use of renewable energy (electricity, gas, and liquid fuels)

Sustainability at Our Airports: Embracing the Paris Climate Agreement

June 5th, 2019

Kathryn Lamond, PE – Environmental and Sustainability Specialist
PANYNJ Aviation Department

Our Facilities



Aviation
John F. Kennedy International Airport
LaGuardia Airport
Newark Liberty International Airport
Stewart International Airport
Teterboro Airport

Bridges
Bayonne Bridge
George Washington Bridge
Goethals Bridge
Outerbridge Crossing

Bus Terminals
Port Authority Bus Terminal
George Washington Bridge Bus Terminal
Journal Square Transportation Center

Port Commerce
Port Jersey-Port Authority Marine Terminal
Brooklyn-Port Authority Marine Terminal
Elizabeth-Port Authority Marine Terminal
Howland Hook Marine Terminal
Port Newark

Tunnels
Holland Tunnel
Lincoln Tunnel

Rail
Journal Square Transportation Center
PATH Rail Transit System

Sustainability Policies

1993:
Environmental Policy

2006:
Sustainable Design

2008:
Sustainability Policy

2018:
Embracing the Paris Climate Agreement

PANYNJ SUSTAINABILITY GOALS

Emissions Reductions

35%
2025

80%
2050

Embracing Paris:
The Clean Dozen

The “Clean Dozen”

Electric Vehicles

1. Thirty-six electric intra-airport shuttle buses
2. Electrify 50% of light duty fleet vehicles
3. JFK fast-charging hub (public/for-hire vehicles)
4. Electric portside and airside equipment

Electric Ground Support Equipment (eGSE)

Charging infrastructure for eGSE

Pursuing grant money, such as VALE and VW Settlement funds to accelerate conversion to eGSE

JetBlue
JFK Terminal 5

$4 million FAA grant
38 charging stations
118 pieces of electric ground support equipment

The “Clean Dozen”

Energy Efficiency

5. LED lighting by 2019

PABT, GWB, HT, EWR, WTC, JFK

6. $100 million investment in upgraded equipment

Energy Efficiency

Project Portfolio

59 million annual Kwh savings
25,000 metric tons GHG reduced
27 million pounds of coal not burned

$100M commitment for new energy efficiency projects 2019 - 2025

6,400,000 Kwh annual energy savings
1,800 metric tons GHG reduced

The “Clean Dozen”

Solar/ Renewables

7. Solar, fuel-cell and renewable grid power

8. RFP for 5MW JFK community solar project

Solar/ Renewables

1,400 tons
YTD
GHG reductions
from current on-site installs
at EWR, SWF and PATH

Under development:

1.6 MW
SWF solar carport

700 KW
PATH MacMillan Building

1.5 MW
LGA West Garage

10+ MW
JFK behind-the-meter & Community Solar

1.2 MW all-electric fuel cell WTC

The “Clean Dozen”

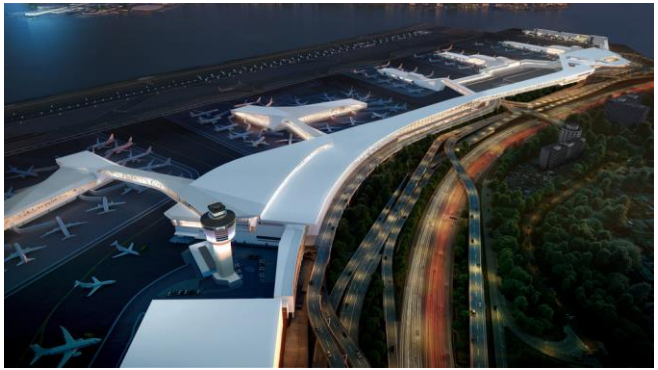
Building Green Facilities

9. $28 billion in new airport facilities featuring best-in-class sustainability measures

Building Green Facilities

Construction of FIVE new Terminals

LGA – replacement of two primary terminals
EWR – replacement of one terminal
JFK – two new terminals will replace three of the six existing terminals



Sustainable Building Design Guidelines
LEED-based
Silver minimum

Climate Resilience Design Guidelines

Building Green Facilities – JFK

Co-generation renewal/microgrid

Streamlined roadways and frontages

Redevelopment Sustainability

EV charging/eGSE
Greywater capture/reuse
Deicing fluid capture/recycling
Preconditioned Air/ground power
Renewables/source energy reduction

The "Clean Dozen"

Ocean-Going Clean Vessel Incentives

10. Financial incentives for environmentally-friendly ship management practices

The “Clean Dozen”

Offshore Wind

11. Support identification of offshore-wind supply-chain facilities in both NY and NJ

The “Clean Dozen”

Partnerships

12

EV 100

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

WPSP
WORLD PORTS SUSTAINABILITY PROGRAM

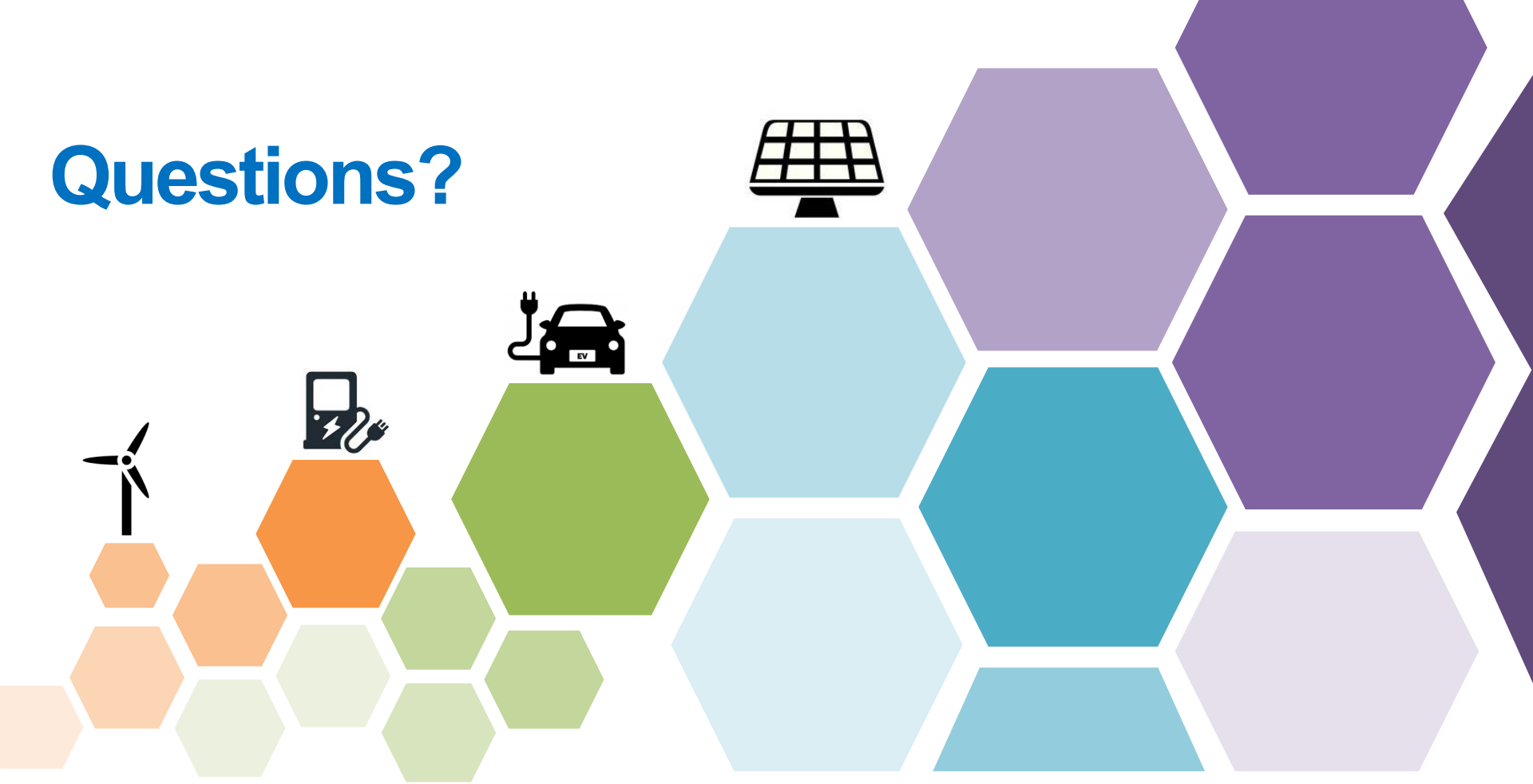
NREL
Transforming ENERGY

below50

TIME TO STEP UP
KEEP AMERICA'S PLEDGE ON CLIMATE
WE ARE STILL IN

Other Scope 3 Initiatives

Questions?



SAN DIEGO INTERNATIONAL AIRPORT

LET'S GO.

"Sustainability Measures at Airports"

EPA SmartWay Webinar

Chad Reese

Manager, Planning & Environmental Affairs

June 5, 2019

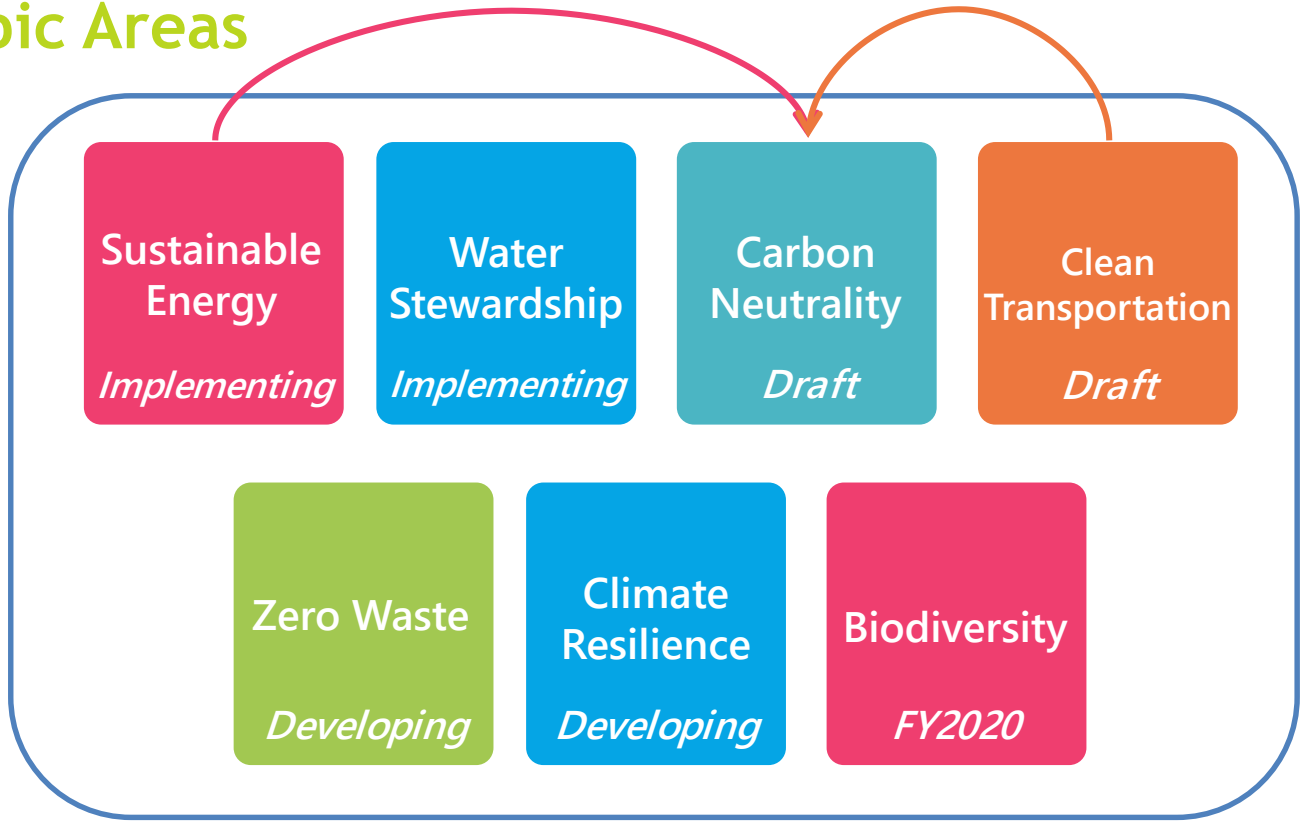
San Diego International Airport

SAN Definition of Sustainability

"Plan and build an enduring and resilient customer-focused enterprise by effectively managing our financial; social; and environmental risks, obligations and opportunities."

Sustainability Management Planning

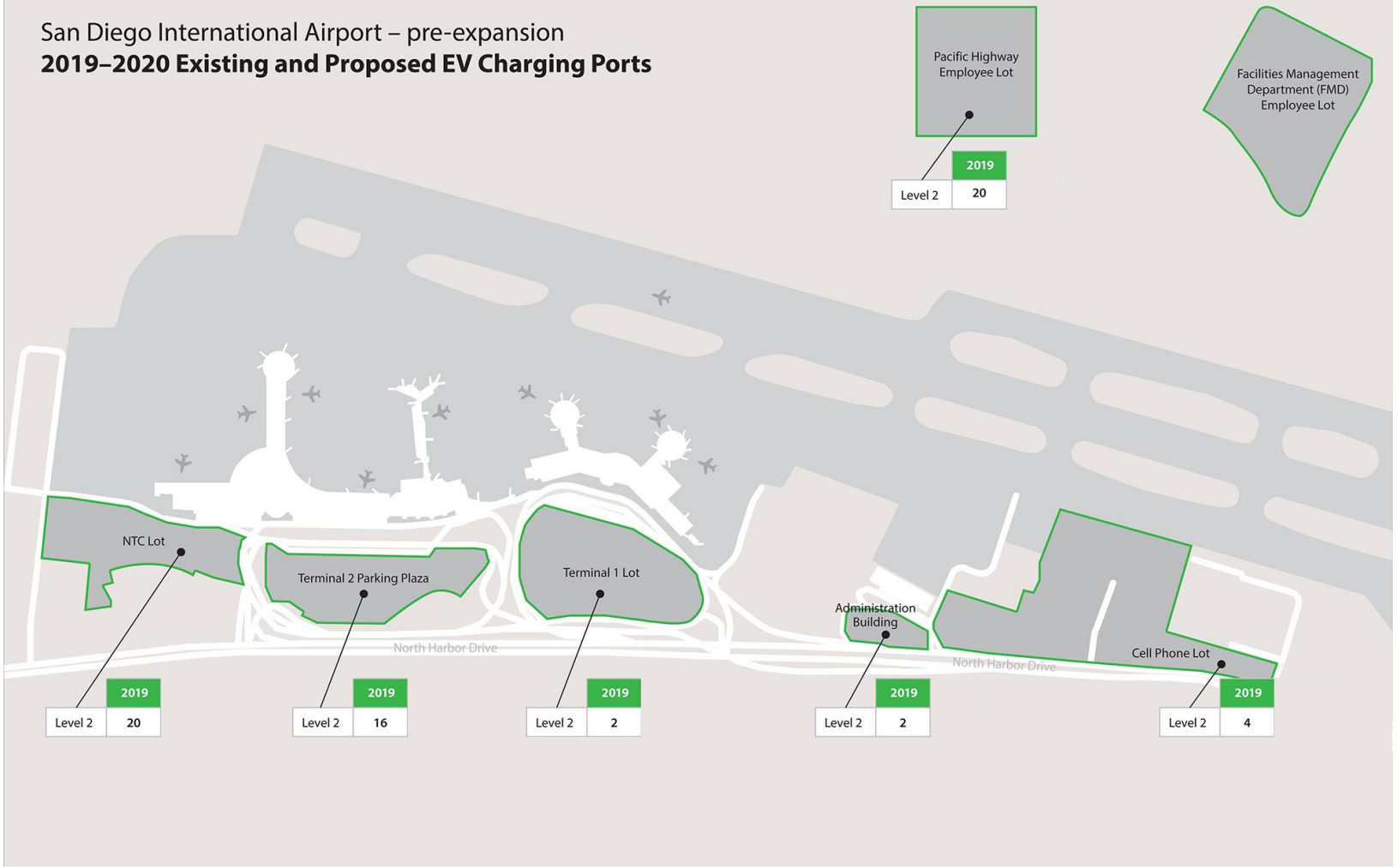
Main Topic Areas



SAN DIEGO INTERNATIONAL AIRPORT
LET'S GO.

San Diego International Airport – pre-expansion

2019–2020 Existing and Proposed EV Charging Ports



Clean Transportation Plan

01	Minimize the Airport's reliance on fossil fuels for Authority fleet vehicles and equipment.	- Alternative Fuels and Vehicle Efficiency	Conversion of Authority-owned vehicles to hybrid, electric, or alternative fuels.	100%	by 2035
			Conversion of Authority-owned equipment to hybrid, electric, or alternative fuels.	80%	by 2035
02	Provide enabling infrastructure for electric and other alternative fuel vehicles used by employees, passengers and tenants.	- Alternative Fuels and Vehicle Efficiency - Employee Transportation - Efficient and Sustainable Transportation Infrastructure - Congestion and Emissions Reduction	Airport wide parking (employee, passenger, etc.) designated for clean air vehicles* and/or EV-ready with pre-wiring.	Step 1: 20% of total spaces Step 2: 50% of total spaces	Step 1 by 2025 Step 2 by 2035
03	Incentivize adoption of low carbon strategies by ground transportation operators.	- Alternative Fuels and Vehicle Efficiency - Congestion and Emissions Reduction	Use GHG rating (GGR**) to measure GHG intensity (gCO_{2e}/mile) of ground transportation providers (taxis, shuttle buses, hotel vans, limos, TNCs, etc.).	Step 1: minimum GGR of 9 Step 2: GGR of 10	Step 1 by 2020 Step 2 by 2030
04	Provide regional leadership, collaboration, and infrastructure to increase use of public transit and other sustainable methods of transportation.	- Public Transit - Congestion and Emissions Reduction - Employee Transportation	Passengers/employees that use sustainable transportation methods (e.g., public transit, vehicles sharing options such as carpool/vanpool, bicycle) to travel to/from the Airport.	15%	by 2035
05	Encourage and help propel reductions in air emissions from airline, tenant, contractor, and construction vehicles and equipment.	- Construction - Alternative Fuels and Vehicle Efficiency - Congestion and Emissions Reduction	Conversion of non-authority vehicles to hybrid, electric, or alternative fuels.	100%	by 2035

Clean Transportation Plan

GOAL 1: Authority's Fleet Vehicles & Equipment

Metrics	Targets
Conversion of Authority owned vehicles to hybrid, electric, or alternative fuels.	100% by 2035
Conversion of Authority owned equipment to hybrid, electric, or alternative fuels.	80% by 2035

SAN DIEGO INTERNATIONAL AIRPORT
LET'S GO.

Clean Transportation Plan

GOAL 2: Clean Vehicles & Airport-Wide Parking

Metric	Targets
Airport-wide parking (employee, passenger, etc.) designated for clean air vehicles* and/or EV-ready with pre-wiring.	Step 1: 20% by 2025 Step 2: 50% by 2035

SAN DIEGO INTERNATIONAL AIRPORT
LET'S GO.

SDG&E Power Your Drive

- SDG&E installed, and will operate and maintain 10 dual-port chargers for 10 years (allows 20 spaces for electrical vehicles to be charged)
- ChargePoint chargers are located at the Employee Parking Lot
- The cost of the energy used to charge an EV is billed directly to the driver via a separate SDG&E Power Your Drive account.

The First
ENERGY STAR®
Certified EV Charger

Clean Transportation Plan

GOAL 3: Low Carbon Ground Transportation Operators

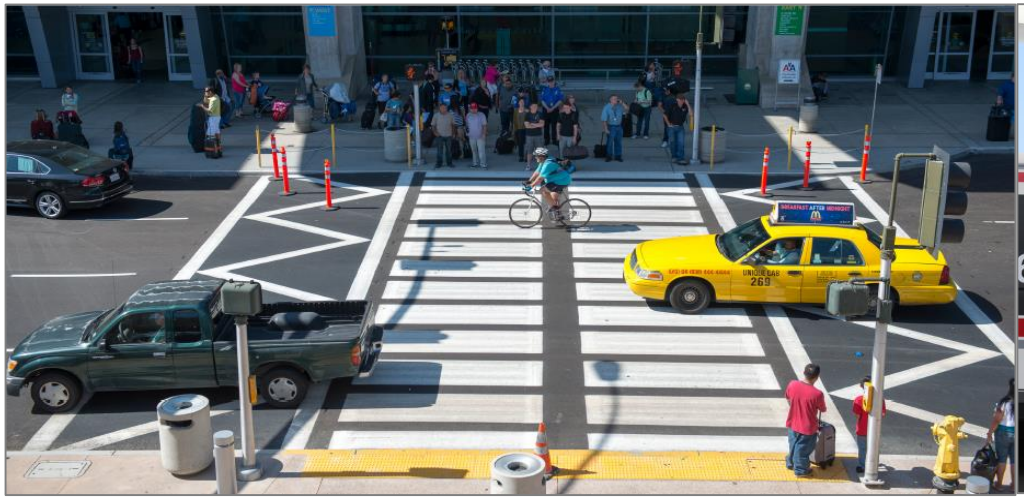
Metrics	Targets
Use GHG rating (GGR*) to measure GHG intensity (gCO_{2e}/mile) of ground transportation providers (taxis, shuttle buses, hotel vans, TNCs, etc.)	Step 1: GGR of 9 by 2020 Step 2: GGR of 10 by 2030

*GGR of 9 = 205-237 g/mile; GGR of 10 = 0-204 g/mile (www.fueleconomy.gov)

SAN DIEGO INTERNATIONAL AIRPORT LET'S GO.

Clean Transportation Plan

GOAL 4: Transit & Other Sustainable Modes

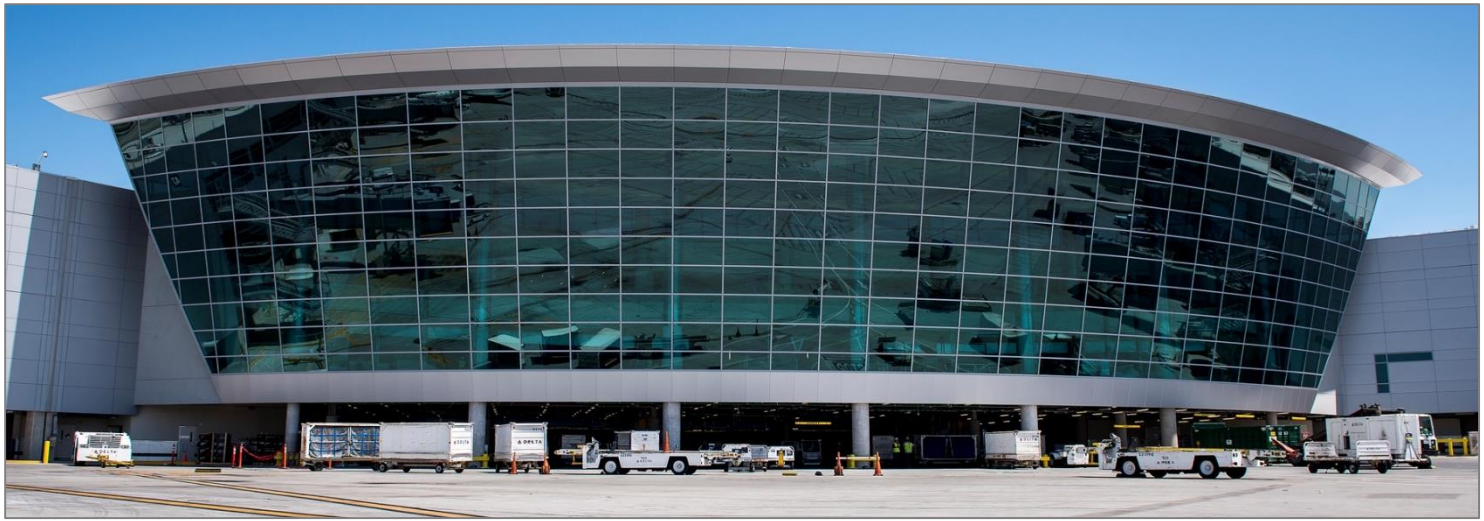


Metrics	Targets
Passengers and employees that use sustainable transportation methods (e.g. public transit, vehicles sharing options such as carpool/vanpool, bicycle) to travel to/from SAN	15% by 2035

SAN DIEGO INTERNATIONAL AIRPORT
LET'S GO.

Clean Transportation Plan

GOAL 5: Airline, Tenant, & Contractor Clean Vehicles



Metrics	Targets
Conversion of vehicles to hybrid, electric, or alternative fuels	100% by 2035

SAN DIEGO INTERNATIONAL AIRPORT
LET'S GO.


sustain.san.org

Thank You!

SmartWay website: https://www.epa.gov/smartway
SmartWay Hotline: 734-214-4767

SmartWay email: smartway_transport@epa.gov

Erik Herzog, Environmental Scientist
734-214-4487
herzog.erik@epa.gov