

VNY Information Session

Alternative Aviation Fuel / Air Quality

Robert Freeman
Airport Environmental Manager

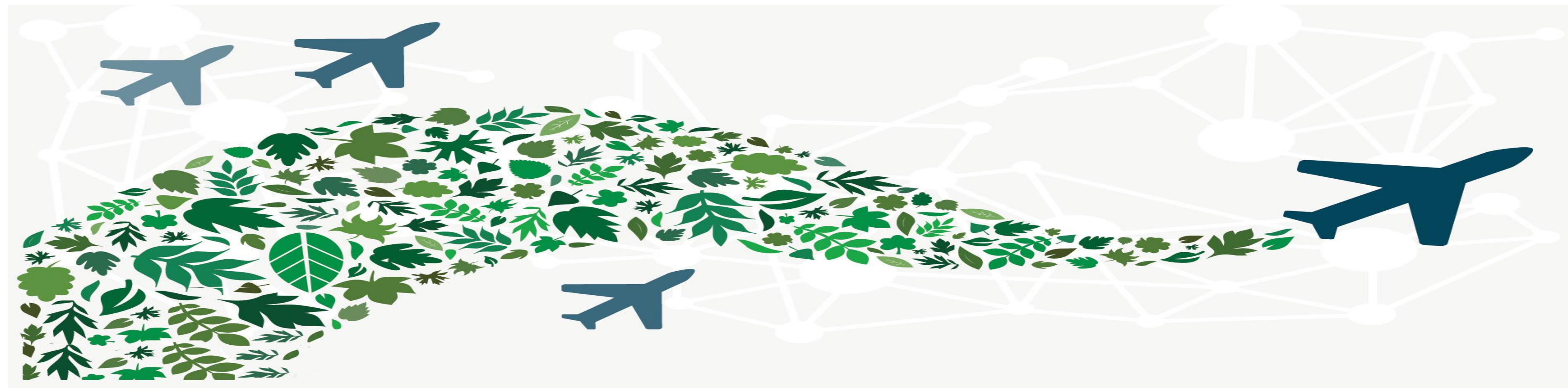
VNY Citizens Advisory Council Meeting
March 1, 2022

Agenda

- National Overview of Alternative Aviation Fuels
- Types of Aviation Fuel at VNY
- Sustainable Aviation Fuel (SAF) – Benefits and Challenges
- Unleaded Aviation Gas – Benefits and Challenges
- Air Quality Regulation and Air Quality Resources
- The Future of Cleaner Aircraft Fuel

National Overview of Alternative Aviation Fuels

- National environmental agenda includes a plan to advance the future of sustainable fuels in the aviation industry involving a coordinated effort across the federal government, aircraft manufacturers, commercial airlines, fuel producers, airports and private entities
- Goal is to achieve a 20% reduction in aviation emissions by 2030 and a zero-carbon aviation sector by 2050 is driver for sustainable jet fuel
- Aviation contributes to approximately 2-3% of all greenhouse gas emissions related to climate change
- Elimination of lead emissions is the driver for unleaded fuel for piston powered aircraft
- The deployment of alternative aviation fuels is critical to aviation sustainability, but many technological and operational challenges exist



Two Types of Aviation Fuel at VNY

Jet fuel – Jet A

- Colorless, refined kerosene-based fuel
- Does not contain lead
- Powers aircraft with turbine engines, such as jets and turboprops

Aviation Gasoline (avgas)

- Petroleum-based ignition fuel (known as 100LL)
- Contains lead, which increase octane rating
- Powers small aircraft with piston engines, such as propellers



Sustainable Aviation Fuel (SAF)

- Sustainable aviation fuel (SAF) is an alternative to Jet A
- Agricultural waste is a feed stock source for SAF
- VNY tenants are early adopters of SAF reporting the use of 100,483 gallons in 2020 and 906,041 gallons in 2021
- SAF is a “drop-in” alternative jet fuel and can be mixed with regular Jet A
- SAF delivered to VNY is locally refined



Benefits and Challenges of SAF

Recent studies show SAF burns cleaner and reduces the carbon footprint, particle emissions and contrails

- SAF may reduce up to 30% of contrails, a major part of aviation's impact on climate change
- Using SAF may reduce particulate emissions up to 50% when compared to Jet A, the most common type of jet fuel
- Modern fuels and engines can help to further reduce particle emissions

Sustainable aviation fuel suppliers have made significant progress, but challenges remain in production capacity, supply and cost



Unleaded Aviation Gas (AvGas)

- Federal Aviation Administration's (FAA) Piston Aviation Fuels Initiative (PAFI) works with fuel suppliers and aerospace manufacturers on operationally safe unleaded fuel formulations
- FAA, aviation trade associations, aircraft and engine manufacturers, and fuel producers are collaborating on the goal of eliminating lead emissions
- “The intention is to safely eliminate leaded aviation fuel by the end of 2030, without impacting the existing piston-engine fleet.” – FAA Administrator Stephen M. Dickson**
02/23/2022.



Benefits and Challenges of Avgas

At the national level, federal regulators and stakeholder groups are collaborating to eliminate the only remaining lead-containing transportation fuel in the U.S.

- Requires a national effort to incentivize suppliers, maintain operational safety of entire aircraft fleet and remove the use of leaded fuels without adverse impacts
- Involves federal qualification test program, new fuel certification, new FAA safety standards and safe transition of entire general aviation fleet

Identifying, testing and authorizing a fleet-wide unleaded avgas solution remains a difficult challenge

- No current unleaded fuels qualify as a drop-in replacement for avgas
- FAA requires supplemental type certification for engines and aircraft to use different fuels
- Limited quantity of unleaded fuels being produced
- Not all aircraft engines can safely operate with fuels less than 100 octane



Air Quality Regulation

Emissions at VNY come mainly from the combustion of fuel from aircraft engines

Regulation

- Under the Clean Air Act (CAA), the Environmental Protection Agency (EPA) has the authority to regulate emissions from aircraft in consultation with the FAA
- South Coast Air Quality Management District (SCAQMD) is the local air district responsible for developing plans and regulations designed to achieve public health standards by reducing emissions from business and industry <http://www.aqmd.gov/>
- LAWA is City of Los Angeles department that facilitates aviation service and operates VNY within the FAA's rules. <https://www.iflyvny.com/> and <https://www.lawa.org/>



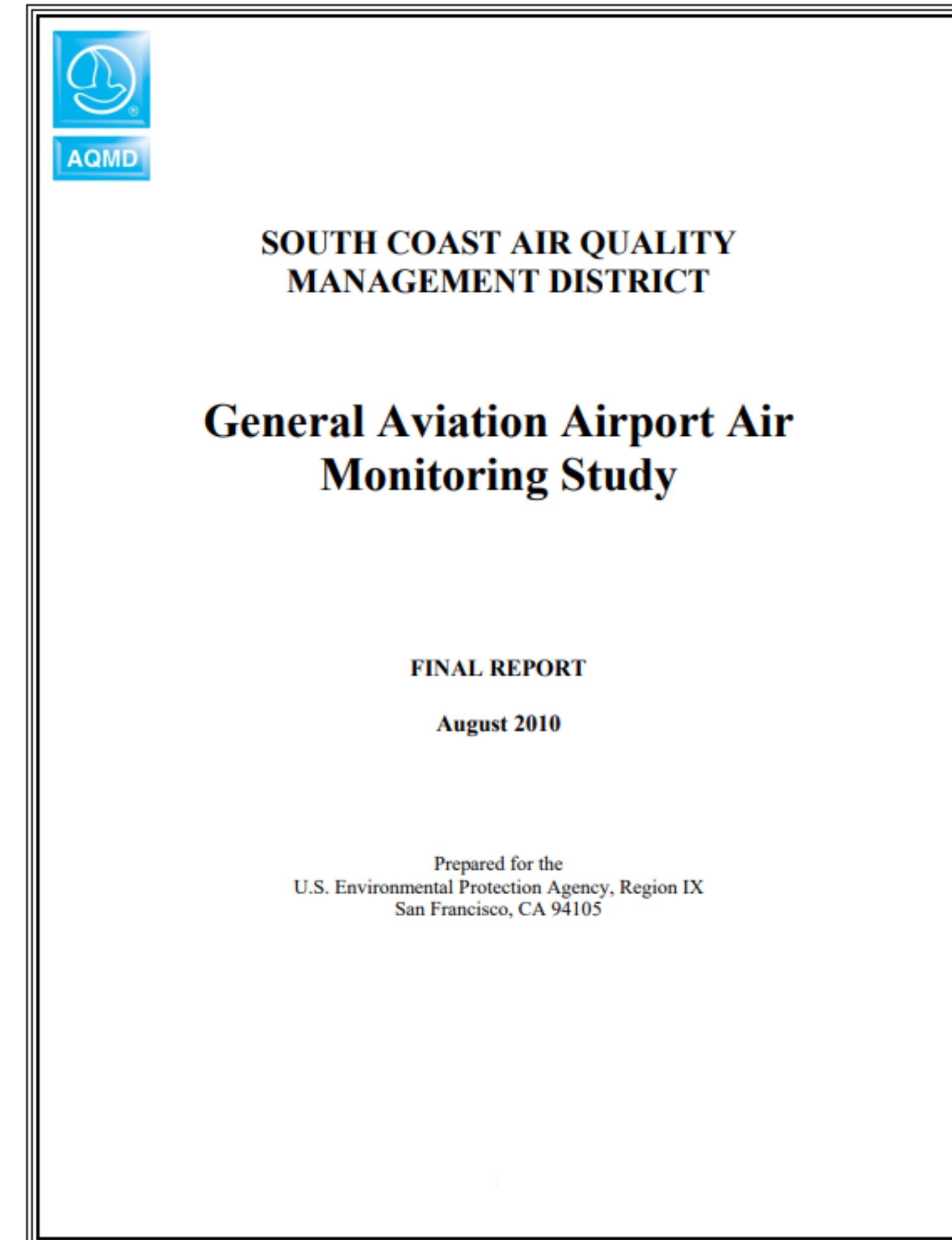
Air Quality Resources

SCAQMD Studies

- Conducted air monitoring at Santa Monica Airport and Van Nuys Airport in 2005-2006. Study released 2010.
- <http://www.aqmd.gov/home/air-quality/air-quality-studies>

Findings

- Lead levels in the community and near runways found to be below the then new federal standards, with highest concentrations near runway sites
- Airport influence on Carbon Monoxide (CO), Particulate Matter 2.5 microns (PM2.5), Volatile Organic Chemicals (VOC), and Carbonyl levels were not distinguishable, and appears minor for long-term exposure
- Ultrafine particles significantly elevated near runways during aircraft operations



The Future of Cleaner Aircraft Fuel

SAF

- Refinery transitions needed to increase availability and supply
- Lower cost of fuel will increase accessibility for users
- At VNY, tenants continue to set the benchmark for SAF use

Removing Lead From Avgas

- Safe, affordable, and feasible alternative for complete conversion of aircraft fleet still in development
- Infrastructure needed to separate unleaded avgas from leaded avgas
- Aircraft need certification for new unleaded fuels
- Logistics needed for suppliers to increase availability and supply





VNY

Thank You