

Mitigation Options to Reduce Emissions



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Pamela Vanderbilt

CH2M HILL, 2485 Natomas Park Drive, Suite 600, Sacramento, CA 95833



Overview

- Airport Emission Inventories
- **Mitigation** Options to Reduce Emissions
- Recommendations

Airport Emission Inventories

- Aircraft Operations
- Aircraft Handling Equipment - Ground Support Equipment, Fueling, Maintenance Vehicles
- Infrastructure Support – Power, Fuel Farm, Comfort
- Landside Traffic - Shuttles, Vans, Taxis, Passenger Vehicles
- Cargo Trucks
- Construction Equipment

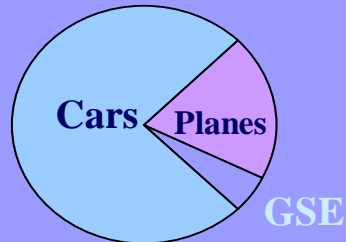
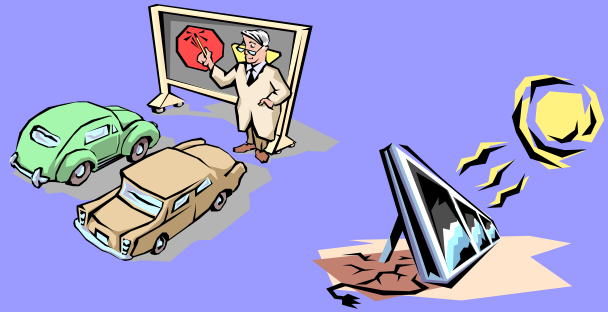


Nature of the Problem

- Urban areas struggle with air pollution issues
- Studies raise public concerns about emissions from airports
- Airports lack meaningful thresholds for analyzing impacts of their emissions
- Emissions **mitigation** helps resolve “all of the above”

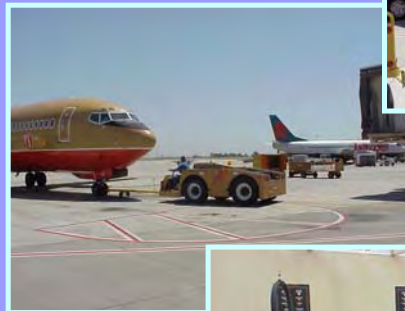
Use a Systematic Approach to Identify Mitigation Measures

- ↑ Technical Measures
(technical solutions like filter traps, catalytic converters)
- ↑ Operational Measures
(changes in operating times or procedures)
- ↑ Regulatory Measures
(standards)
- ↑ Economic Measures
(incentives)



Why Mitigate?

- Reduce Air Impacts
- Be **Green**
- Build Trust in the Community
- Save Money



Is Technology Available?



- CNG Shuttles, Vans
- LPG Trucks
- Electric Vehicles
- Electric Baggage Tugs and Belt Loaders
- Terminal/Gate Electrification (400 Hz Power, Pre-Conditioned Air)

Support Infrastructure

- CNG Fueling Station
- LPG Fueling Station
- Photo-Voltaic Arrays
- Fast Chargers for GSE
- Vehicle Chargers for Public and Fleet
- Electrical Supply



Recommendations



Mitigation Options & Emissions Reductions for Airports

- Reduce Aircraft Engine Idle Times
- Streamline Pre-Flight and Taxi Procedures
- New Engines/Alternative Fuels/Control Retrofits for GSE and Emergency Generators

Airlines are Retrofitting Planes With Winglets to Burn Less Fuel

Reduces drag and increases lift

Many airlines are making this investment

More new aircraft have this feature



Mitigation Options & Emissions Reductions for Airports, cont.

- Low Emission/Alternative Fuel Vehicles
- Reduce Employee Vehicle Trips
- Reduce Heating/Cooling Demand; Implement Energy Conservation Programs
- Dust Control and Mitigation

CNG Buses Replaced Diesel Buses

- CNG fuel costs less than diesel fuel



Electric Motorcars



New Low-Speed Electric Trucks

Ideal for
short trips
around the
airport

Top speed
25 mph

Cost
\$18,000 to
\$24,000
depending
on options



Recommendations for Further Evaluation of **Mitigation** Options

- Determine Feasibility of Streamlined Pre-Flight Procedures and Reduced Taxi Distances
- Survey GSE/TSE/AGE and Emergency Generators for Potential Reductions through:
 - ↑ Equipment Upgrades
 - ↑ Alternative Fuels
 - ↑ Control Technology Retrofits

Electric Powered Aircraft Pushback Cart



Electric Charger and Electric Bag Tug



It's Worth a Look

- One Step at A Time
- Phase Plans So Most Successful and Cost-Effective Are Implemented First
- Involve Other Interested Parties – Electricity Provider, Equipment Manufacturers, Fuel Distributors
- Share Information and Technology with Other Airports