

# SUSTAINABILITY for SMALLER AIRPORTS



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# TOPICS

- **Drivers: What's Going On Out There?**
- **Framework: How Do I get My Head Around This?**
- **Actions: What Can I Do?**
- **Resources: Help!**



# DRIVERS: What's going on out there?



# DRIVERS: What's going on out there?



# **TOPICS OF INTEREST - ENVIRONMENTAL**

**Energy Conservation**

**Air Quality**

**Climate Change**

**Water Conservation and Water Quality**

**Biodiversity Conservation**

**Material Management**

**Green Buildings**

**Waste Management**

**Noise Abatement**

# **TOPICS OF INTEREST - SOCIAL**

**Public Awareness**  
**Stakeholder Relationships**  
**Employee Relationships and Well-Being**  
**Sustainable Transportation**  
**Accessibility**  
**Identification with Local Culture and**  
**Heritage**  
**Indoor Environmental Quality**  
**Passenger Well-Being**

# **TOPICS OF INTEREST - ECONOMIC**

**Hiring and Purchasing  
Community Contributions  
Quantifying Sustainability  
Contributions to Research and  
Development  
Incentives for Sustainable Behaviour  
Finance and Capital Management**

# FRAMEWORK: How do I get my head around this?

Sustainability is an overarching goal of this project. Sustainability means meeting the Region's air transportation needs without compromising the livability and quality of life for future generations. In this planning process, we will transparently explore and make recommendations that **fairly, realistically and optimally balance** the following **values and goals**:

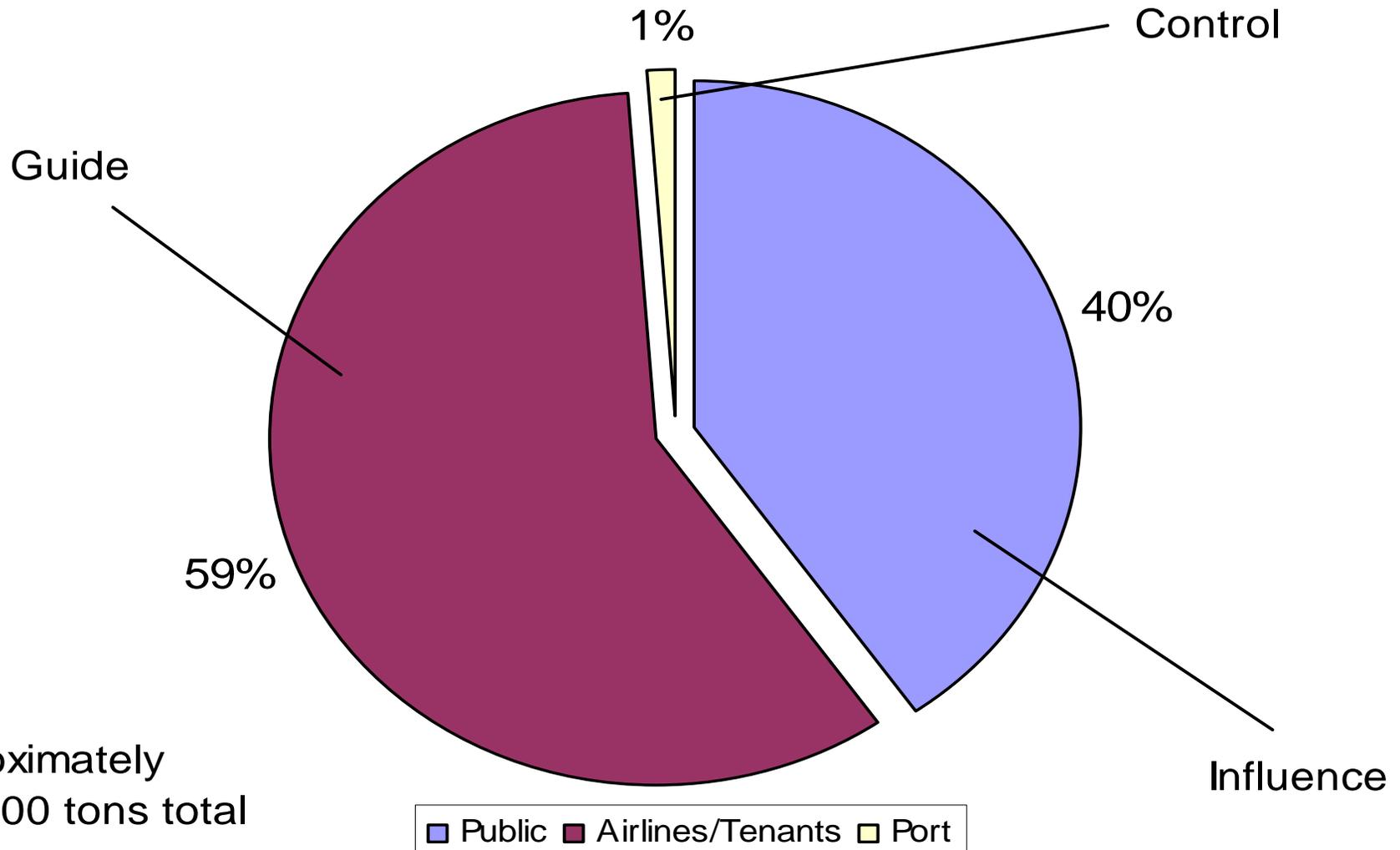


In doing so, **our recommendations** will:

- 1 Balance and sustain economic, environmental, and social interests;
- 2 Integrate other local and regional planning efforts into Airport Futures planning and vice versa;
- 3 Provide long-term public involvement process with opportunities for meaningful public engagement and a voice in aviation development; and
- 4 Provide system to measure and track success and share results with public.

# PDX CO2 Emissions to date

## 2006 PDX CO2 By Source



# GHG Reduction Strategies

- **Strategies:**

- **Control**

- Implement additional utility efficiency projects
    - Actively promote telecommute policy
    - Continue to purchase Renewable Energy Credits
    - Install Automatic Vehicle Identification (AVI) system for use of commercial vehicle lane
    - Purchase non-combustion vehicles
    - Install 2MG photovoltaic power generating system on airfield

# GHG Reduction Strategies continued

## - Guide

- Pre- conditioned air on all remaining loading bridges
- Electrify GSE
- One engine taxiing

## - Influence

- Increase MAX ridership (employees/passengers)
- Public transportation options from Vancouver

# ACTIONS: Topics, Goals, Metrics, Actions

## Resources:

- **FAA NextGen Environmental Goals, Metrics, Targets, 2009 ([www.faa.gov](http://www.faa.gov))**
  - **Noise, Air Quality, Climate Change, Energy, Water Quality**
- **ACI-NA Environmental Goals, Feb 6, 2009 ([www.aci-na.org](http://www.aci-na.org))**
  - **General (2); Air, Climate, Energy (7); Noise (1); Waste (1); Water (2)**
  - **Goal, Goal Details, Data on Existing Use, Benefit of Initiative, HOW to put in Place (resources needed, resources/funding available, ACI assistance)**
  - **ACI-NA Sustainability Initiative Index, 2006 (Actions: 200+)**
- **ACI-NA Environmental Benchmark Survey, 2008**
  - **Air; Noise; Water Conservation; Waste; Green Building**
  - **Actions: 100+**
- **Airport Sustainability Issues GRI/NACO (2008)**
  - **Topics: Env-9; Social- 8; Economic-6 (Actions: est. 100)**
  - **Optimal Airport Sustainability Attributes (16)**

# ACTIONS: Topics, Goals, Metrics, Actions

## Resources:

- **Transportation Research Board (TRB) ([www.trb.org](http://www.trb.org))**
- **Airport Cooperative Research Program (ACRP) (via TRB site)**
- **ACRP Synthesis 10: Airport Sustainability Practices (March 2009)**
  - **Survey of Airports**
  - **Drivers, Priorities, Barriers to Sustainability Practices**
  - **Organizational Governance of Sustainability**
  - **Env. Practices**
  - **Economic Practices**
  - **Social Practices**
  - **Management Performance Scale**
  - **List of 25 airports responding to survey**
  - **List of Sustainability Practices ...HUNDREDS!**

# **ACTIONS: Other TRB Resources**

## **Resources:**

**ACRP 01-01 [Active] - Guidebook for Managing Small Airports**

**ACRP 02-13 [Pending] Spring 2010 - A Guidebook for Improving Environmental Performance at Small Airports**

**ACRP 04-06 [Active] 12/09 - A Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports**

**ACRP 10-01 [Active]- Optimizing the Use of Aircraft Deicing and Anti-Icing Fluids**

**ACRP 08-01 [Pending] Spring 2010 - Sustainable Airport Construction Practices**

# Energy Conservation



# ACTIONS & PRACTICES

## ENERGY CONSERVATION

- Energy and GHG Audits
- Automatic lighting systems
- Energy Star energy-efficient equipment
- Escalator/people mover sleep mode
- Photovoltaic systems
- Automatic heating, ventilation, and air conditioning (HVAC) control, hot air curtains, airflow return, carbon monoxide monitors to reduce unnecessary HVAC, air-handling units with variable speed drives and soft-start controls
- Flight operation consolidation to a confined area of the concourse during non-peak hours, permitting the airport to shut off air conditioning and lighting in unused areas
- Solar hot water panels to preheat hot water

# ACTIONS & PRACTICES

## AIR QUALITY

- **Air quality management plan**
- **Airport development that complies with legislation**
- **Stationary source reductions**
- **Particle filter installations on airport vehicles**
- **Partnership with research institutions and resource agencies to address air quality**
- **Active dust control and permitting and conformity analysis programs**
- **Transport Demand Management (strategies or policies to reduce or redistribute automobile travel demand)**
- **Air quality monitoring and metering**

# Renewable Energy



# ACTIONS & PRACTICES

## CLIMATE CHANGE

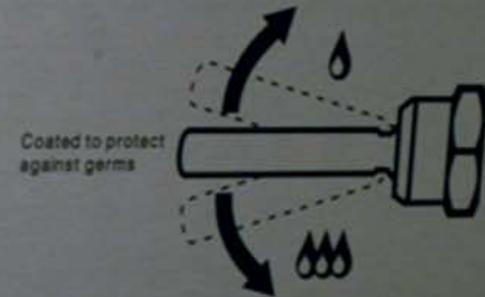
- Greenhouse gas inventories and reduction targets
- Clean/alternative fuel vehicle program
- Ground power units at gates
- Aircraft towage from gates to runway
- Taxiway improvements to reduce taxi distances from terminals to runways
- Air emissions charge that penalize highly polluting aircraft with the highest rate
- Compressed natural gas (CNG), electricity, propane, solar power, hydrogen, ethanol and biodiesel fuels
- Intra-terminal train, automated people movers
- Partnership with local stakeholders to develop a comprehensive public transportation network external to the airport that includes light rapid transit to airport and subsidized public transport
- Continuous descent approach program

# Water



## Water-Saving Dual-Function Handle

UP for #1 (liquid waste)



DOWN for #2 (solid waste)

By installing the water-saving handle with dual-function flush, the facility has demonstrated its commitment to protect and preserve the environment. For the system to work, we need your help. Please take a look at the diagram above and push the handle in the direction which best suits your needs. With your assistance, we can do our part to conserve this precious resource.

**SLOAN.**

# ACTIONS & PRACTICES

## WATER CONSERVATION

- **Low flow/automatic fixtures and toilets, and waterless urinals**
- **Rainwater capture**
- **Gray/storm/recycled water usage for toilet flushing**
- **Recycled water usage by car rental companies for washing cars**
- **Computer-controlled, "smart" irrigation systems**
- **Green roofs and limited landscaping that features xeriscape and drought-tolerant species**
- **Water consumption and conservation audits, and water monitoring initiatives**

# Water



# ACTIONS & PRACTICES

## WATER QUALITY

- **Water quality monitoring**
- **Onsite stormwater collection, treatment and management (swales, bioretention, vaults, wetlands)**
- **Stormwater pollution prevention plan incorporated into all new construction projects**
- **De-icing fluid collection and treatment**
- **Spill traps/management, oil/water separators**
- **Onsite wastewater treatment plants**
- **Impermeable surface minimization (runways, taxiing lanes, buildings)**

# Land and Natural Resources



# ACTIONS & PRACTICES

## BIODIVERSITY CONSERVATION

- **Green space incorporation at the development stage**
- **Habitat management and landscaping that deters avian population**
- **Unsealed area management of airport land to prevent collisions between aircraft and birds**
- **Wildlife hazard management plan**
- **Vegetation management and habitat protection**
- **Local conservation group support to restore and preserve habitat**
- **Nature conservation areas created and financially supported as ecological compensation measures**
- **Bird monitoring and movement away from aircraft**
- **Preservation areas on airports to protect habitat and wildlife**
- **Wetland mitigation program**
- **Invasive species removal and native species reestablishment program**

# Partnerships for Sustainability



# ACTIONS & PRACTICES

## MATERIAL MANAGEEMNT

- **Soil pollution identification, contaminated site surveys, and groundwater monitoring program**
- **Pollution zone decontamination, soil and groundwater cleanup**
- **Carpeting with high recycled content**
- **Rapidly renewable, abundant, and sustainably harvested materials**
- **Closed loop approach (e.g., reused, recycled)**
- **Restroom paper products with high recycled content**
- **Building materials reuse onsite (e.g., reuse of concrete and asphalt during construction projects)**
- **Biochemical oxygen demand (BOD) de-icing materials**
- **Antifreeze usage with high recycled content (glycol)**
- **Compostable food service**

# Partnerships for Sustainability



# ACTIONS & PRACTICES

## MATERIAL MANAGEEMNT

- **Building construction to achieve BREEAM/LEED certification**
- **Use of natural light**
- **Terminal building design efficiencies - high-performance glazing, enhanced daylight, energy-efficient fixtures, efficient entryways, efficient ventilation, outside air economizer, energy management and control system, variable-flow chilled and hot water systems.**
- **Sustainable design guidelines for all design and construction projects.**

# Thank You



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