Airport Environmental Management – An Overview

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Airport Environmental Management

1. Noise
2. Local Air Quality
3. Greenhouse Gas Emissions
4. Water
5. Solid Waste
6. Other Issues

1 Noise - Overview

Aircraft Noise Management
- **Reducing actual noise levels using aircraft modernization and flight track management**

Land Use Planning
- **Reducing the number of people subject to high noise levels**

Community and Communications
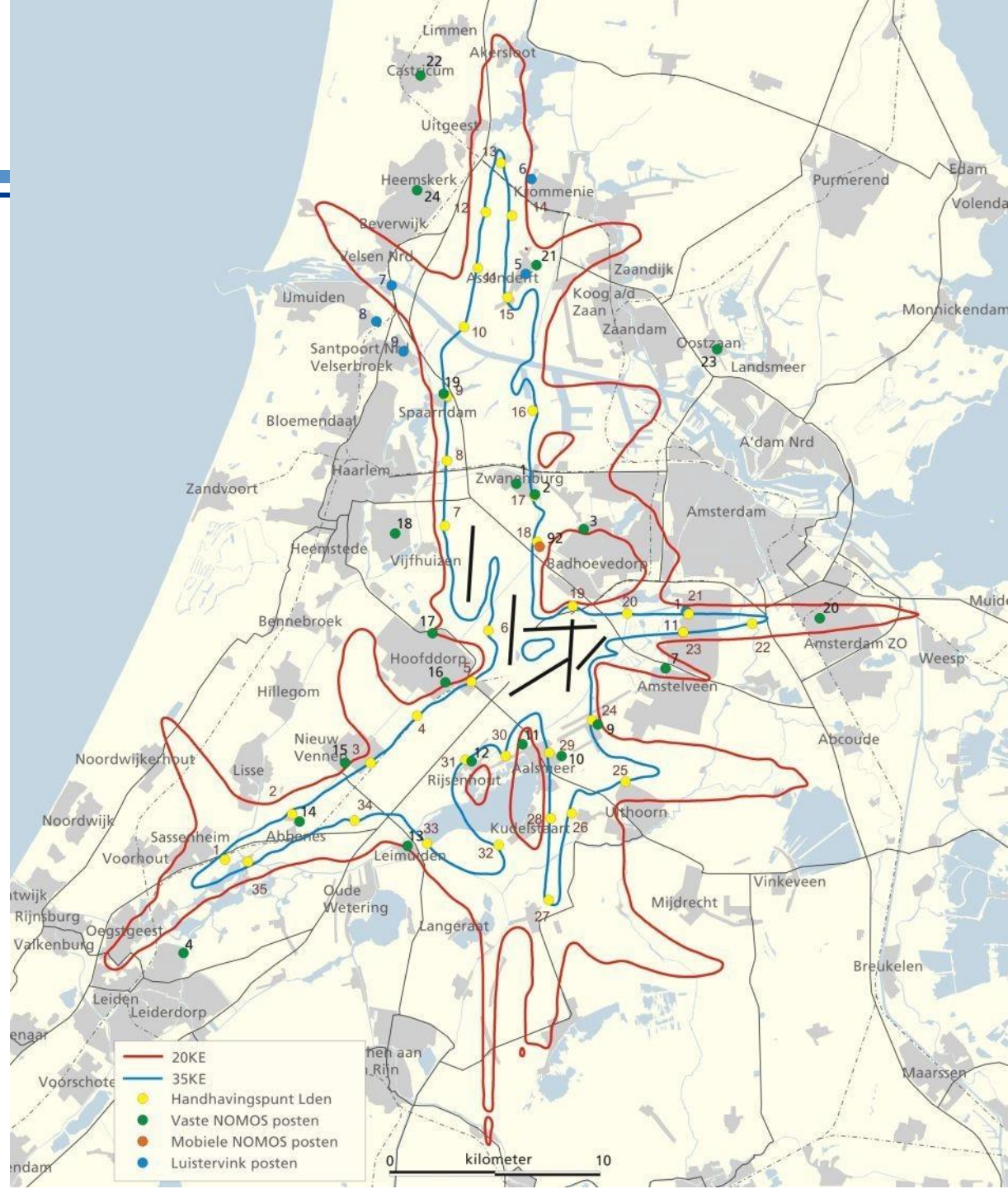- **Improving community understanding, attitudes and acceptance of airport activity**

1 Noise

Managing noise
- **Runway use**
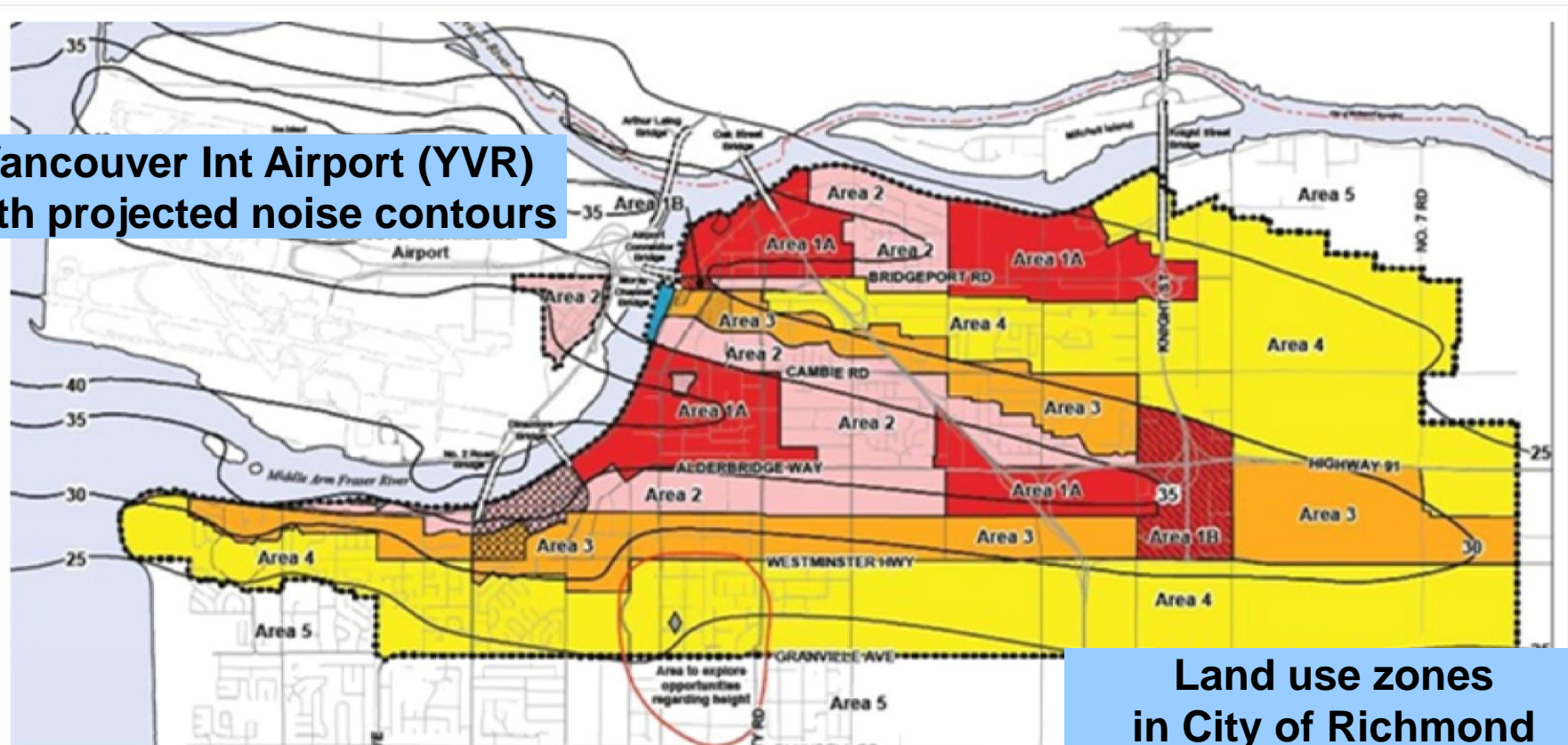- **Tracks to avoid urban areas**
- **Modern aircraft fleet**

(Schiphol AMS)

1 Noise - Land Use Planning

- Local government authorities zone the land.
- Need to avoid residences, schools and hospitals in noise affected areas.

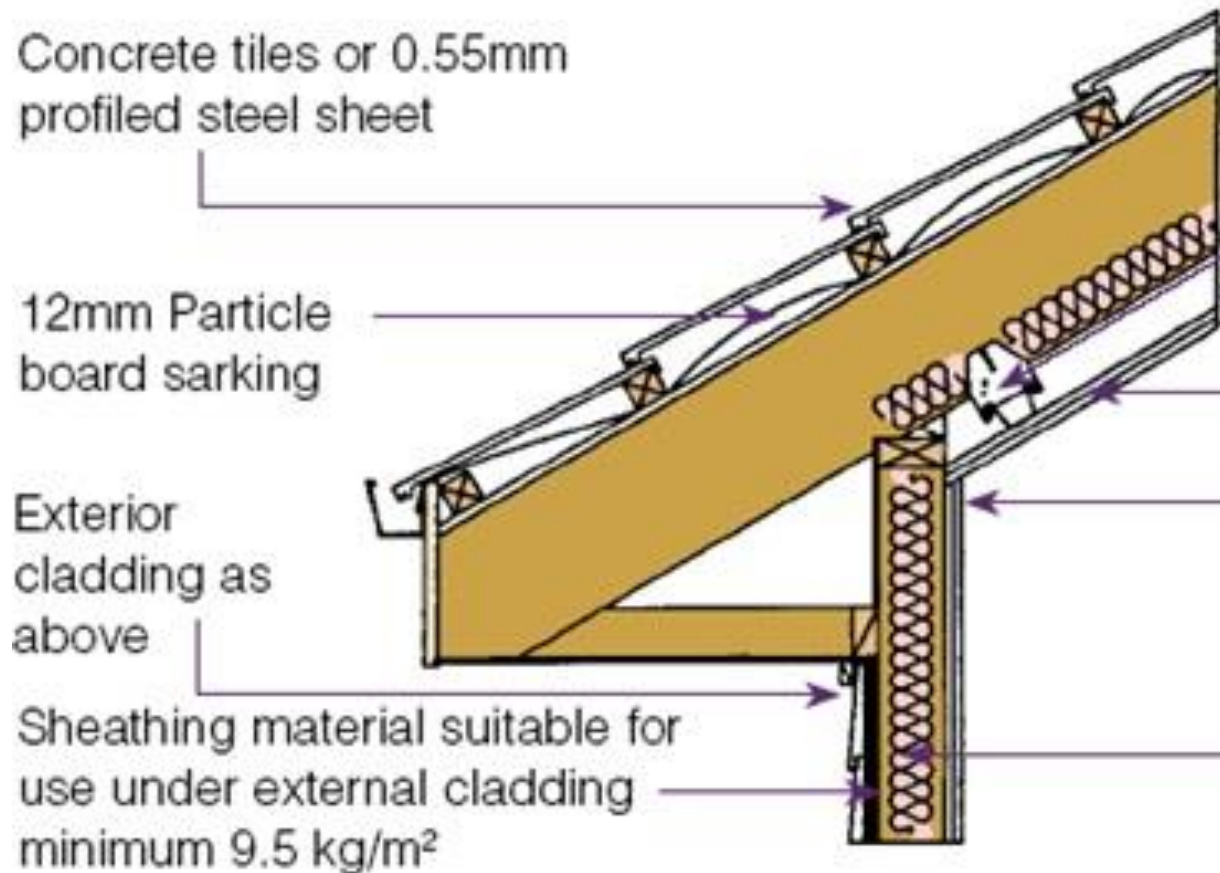

Vancouver Int Airport (YVR) with projected noise contours

Land use zones in City of Richmond

1 Noise - Land Use Planning

Sound insulation and ventilation of existing and new housing (only a partial solution)

Concrete tiles or 0.55mm profiled steel sheet

12mm Particle board sarking

Exterior cladding as above

Sheathing material suitable for use under external cladding minimum 9.5 kg/m²

1 Noise - Community and Communications

- **Informing and interacting with communities**
- **Airport website**
- **Managing complaints and noise forums**
- **Focus on Sustainability elements – Impacts and Benefits on Environment, Society and Economics**
- **Noise-tracking web sites**
- **Clear, transparent and up to date information**

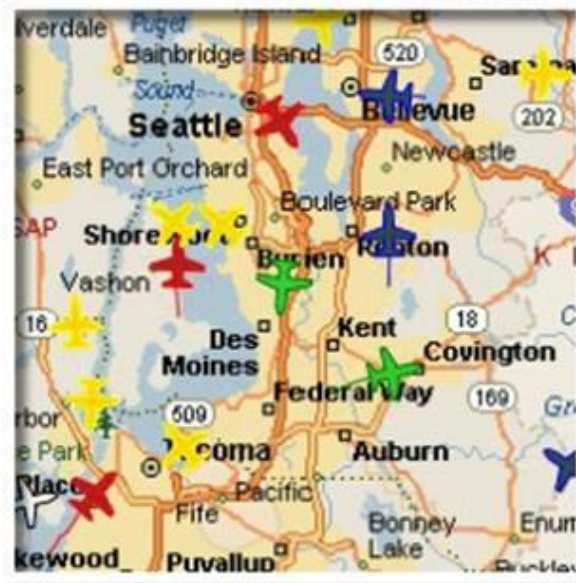# 1 Noise Tracking Websites

WebTrak

PRINT

Airports are increasingly realizing that community engagement is more and more important to the operations of the airport. The growing challenge is how to manage this continuous engagement to realize the best results for both the general public and the airport.

Lochard has launched the first in a series of low-risk subscription services aimed at improving and maintaining valuable dialogue with the airport's external stakeholders. This takes the pressure off your operations team and eases the pressure for your management team.

WebTrak provides live aircraft movements. It gives the community access to flight and noise data and reduces the need and time for airport employees to explain where aircraft actually fly, how often, who they are and where they go.

Read more...

Visit WebTrak Sites

Heathrow

Gatwick

Seattle

Sacramento

San Jose

Stansted

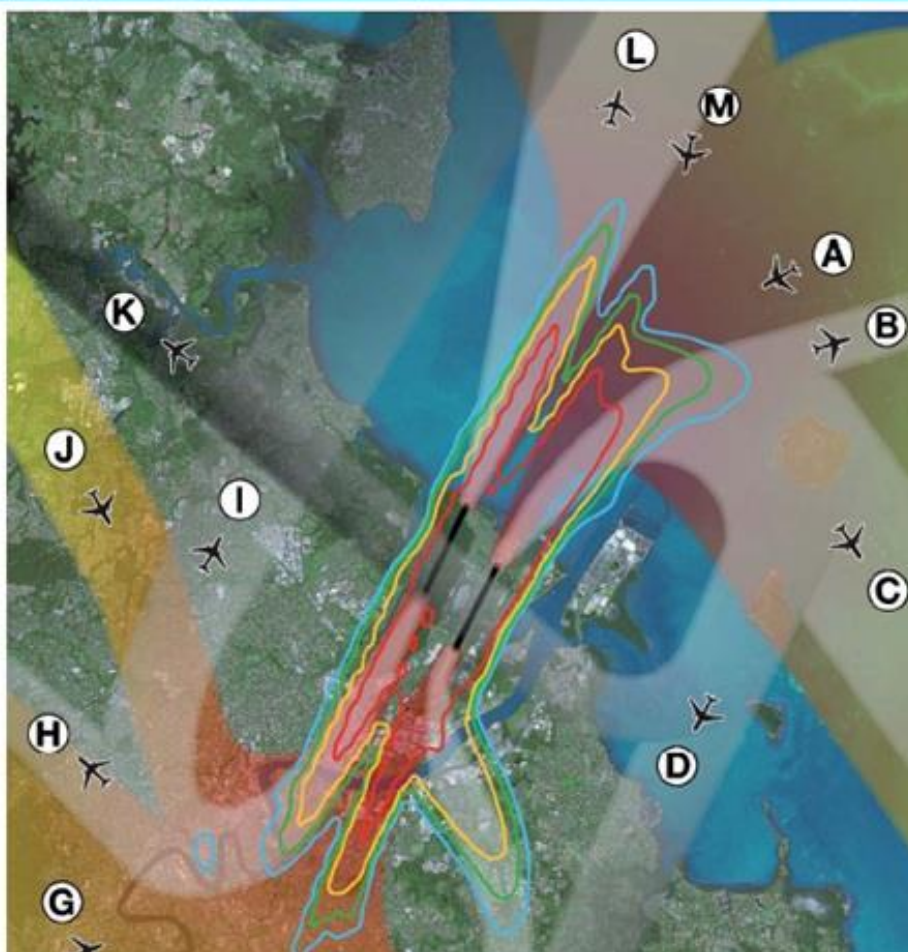2015 Without the NPR – Summer Weekday Day Monday to Friday 6.00am – 6.00pm
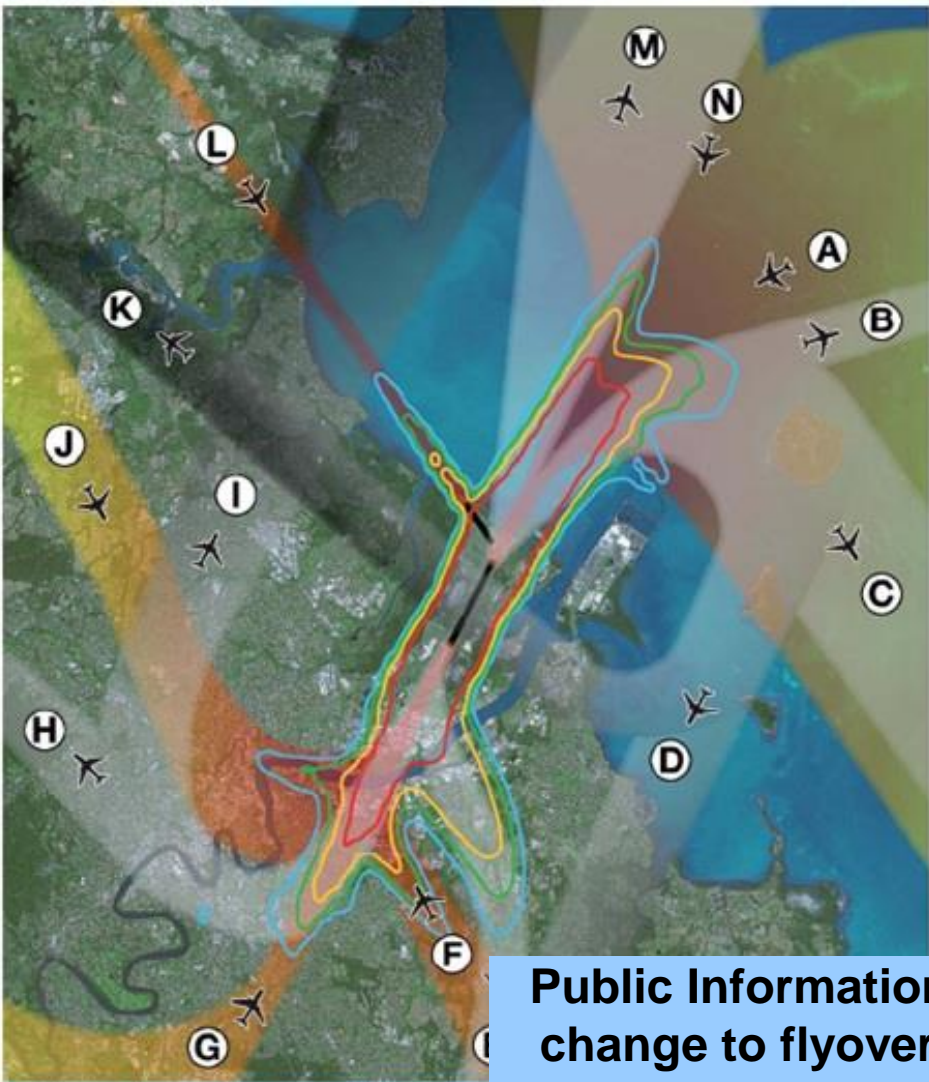
2015 With the NPR – Summer Weekday Day Monday to Friday 6.00am – 6.00pm
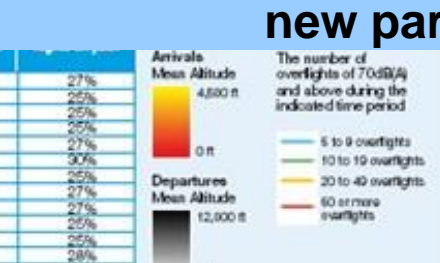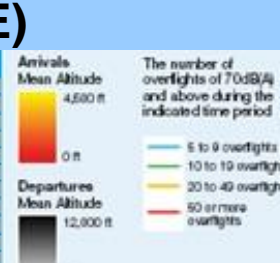
Public Information: Graphics to demonstrate the expected change to flyovers with and without the construction of a new parallel runway at Brisbane (BNE)

2 Local Air Quality (LAQ) - Overview

Regulations/Guidance
- **Permitted air quality pollutant levels**

Inventory
- **Identify sources and quantities of emissions**

LAQ Assessment
- **Monitoring pollutant concentrations**
- **Modelling dispersion – source to receptor**

Mitigation of Sources
- **Actions to reduce emissions**

2 LAQ – Regional Regulation

Example limits on local pollutant concentrations – µg/m3

	SO_2		NO_2		CO		PM10	
	1 hr	1 yr	1 hr	1yr	1 hr	8 hr	1 d	1 yr
WHO	125	-	200	40	30	10	-	-
EU	350	20	200	40	-	10	50	40
Australia	520	50	220	50	-	10	50	-
Brazil	-	90	320	100	40	10	150	-
Canada	900	60	400	100	35	15	-	-

2 LAQ – Assessment - Measurement for Compliance

Monitoring (measuring) pollutant concentrations
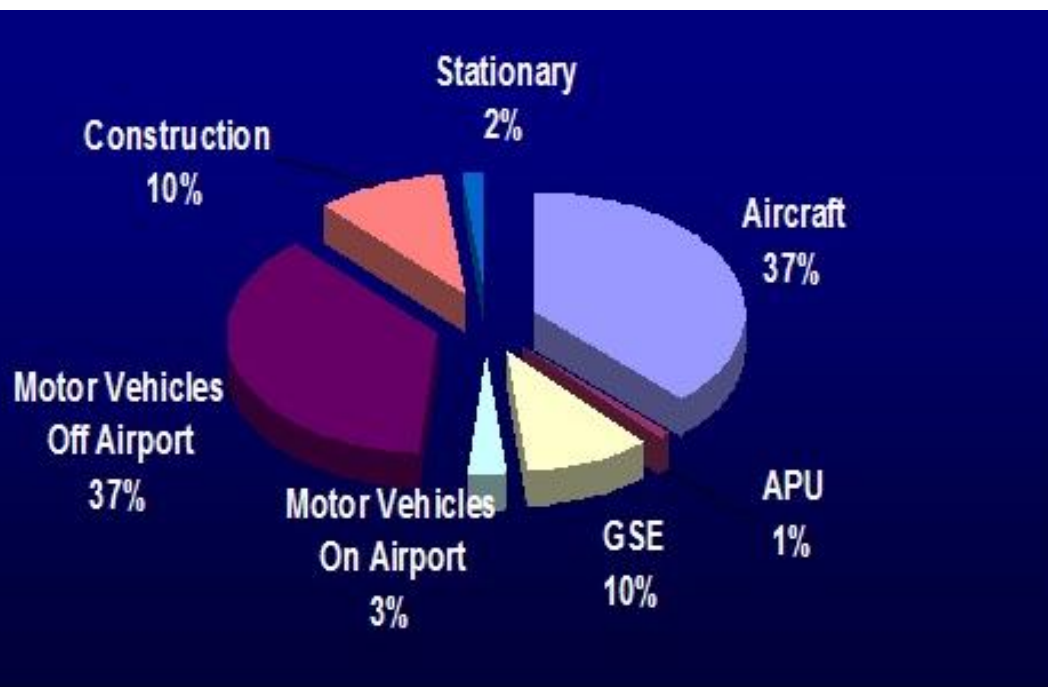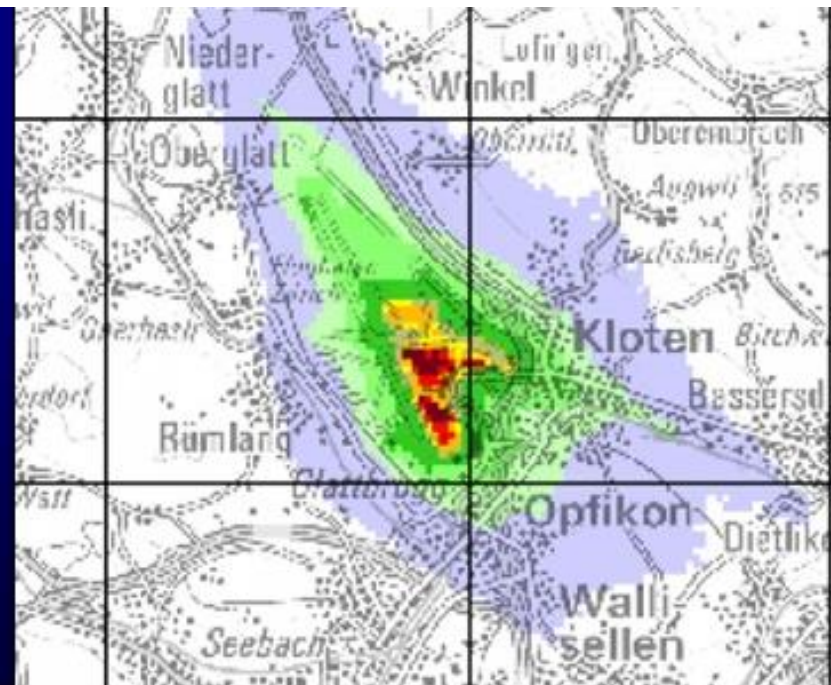- Compliance with regulated limits

Red = points of non-compliance

2 LAQ – Modelling and Source Apportionment

Modelling (calculating) pollutant concentrations

- Inventory of emissions sources
- Calculating physical and chemical dispersion
- Source apportionment

Inventory of NOx Emissions

Calculated NOx Concentrations (ZRH)

2 LAQ Mitigation – Reducing Emissions

Providing fixed electrical power (400Hz) and pre-conditioned air to aircraft at terminal gates replaces APU usage and allows engine switch-off.

2 LAQ Mitigation – Reducing Emissions

Automated metro line between terminals and train station replaces shuttle buses for 140 000 PAX per day.

Reduction of 2500 t CO2 and 15 t NOx per year.

(Paris CDG)

2 LAQ Mitigation – Reducing Emissions

Ground vehicle fleet replacement – CNG, SULEV, Hybrid and Electric vehicles.

Rapid recharge station for Electric Vehicles

(DFW Dallas Fort Worth)

3 Greenhouse Gas Emissions Management

ACI Guidance Manual

ACERT Inventory Tool

Airport Carbon Accreditation

- Certification of achievements

More detail will be provided in the ICAO State Action Plan Workshop tomorrow.

3 GHG Guidance Manual

- **Emissions Categories – Scopes 1, 2, and 3**
- **Inventory**
- **Goal Setting**
- **Reducing emissions**
- **Carbon Neutrality**
- **Reporting and Certification**

Also ES and FR

www.aci.aero

3 GHG Inventory

ACERT v2.0

Do-It-Yourself Airport Emissions Inventory Tool

Developed by ACI and Transport Canada

Free, no expertise required

Email: acert@aci.aero

3 GHG - *Airport Carbon Accreditation*

Carbon management standard designed for the airport industry.

Level 1: Mapping

- Inventory of airport emissions

Level 2: Reduction

- Mitigation of airport-owned emissions

Level 3: Optimisation

- Involving stakeholders in emissions reduction

Level 3+: Neutrality

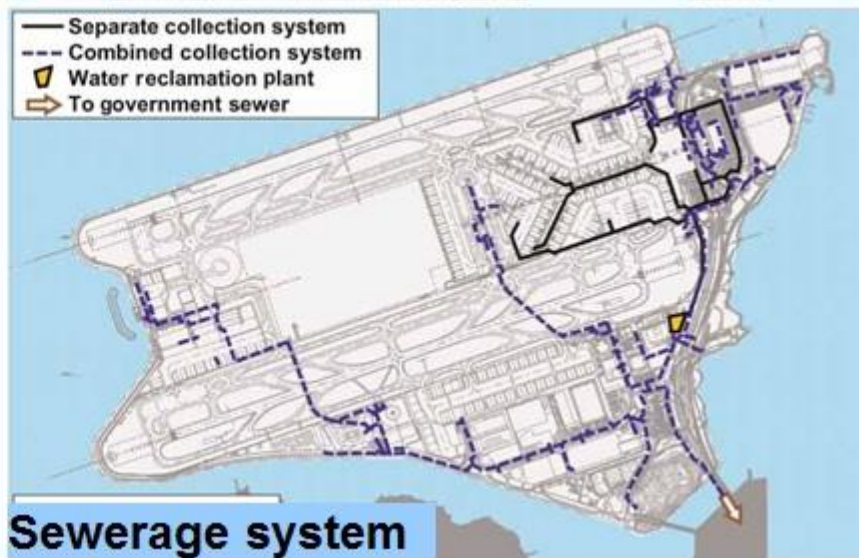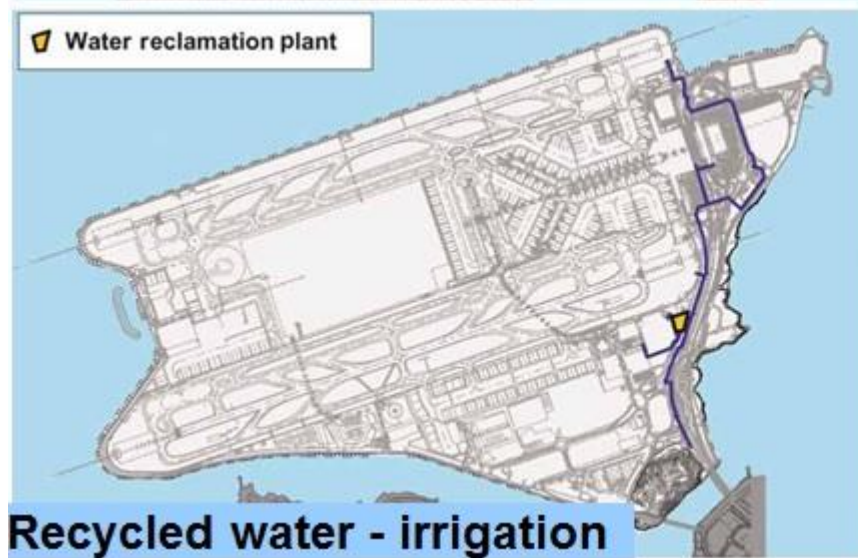- Offsetting residual airport emissions

www.airportcarbonaccreditation.org
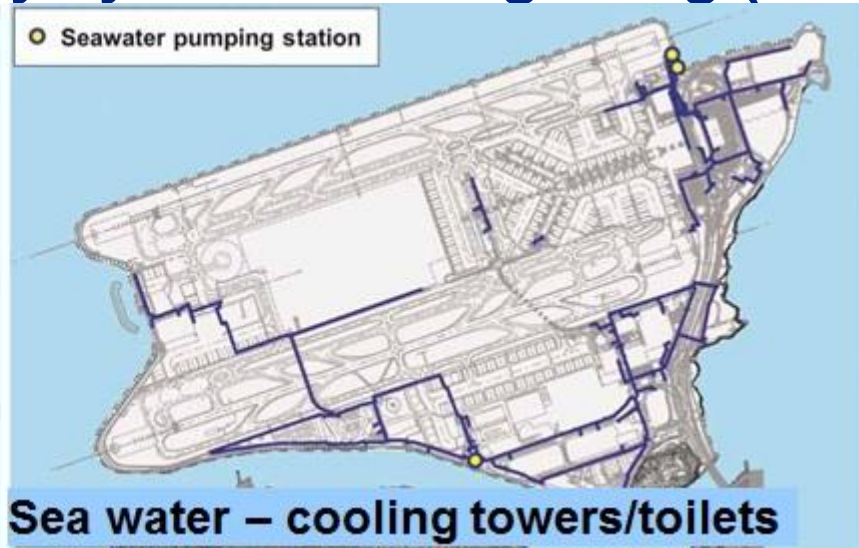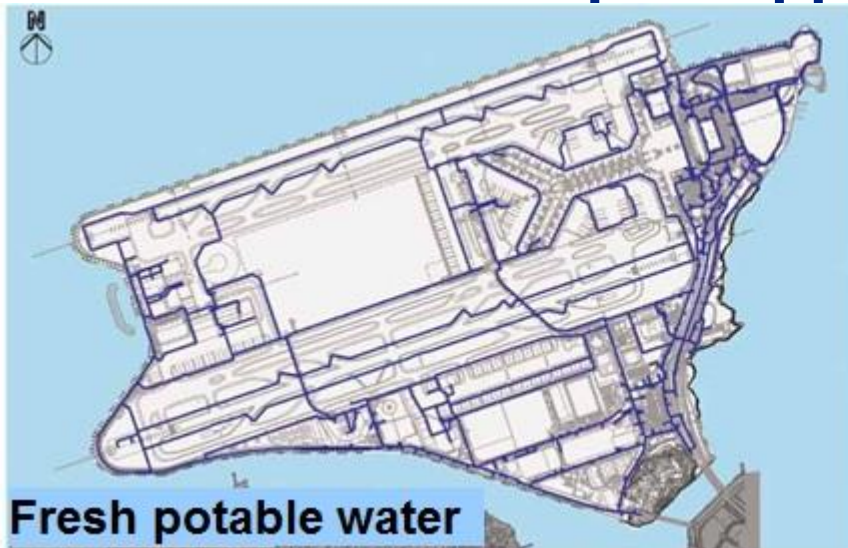
3 *Airport Carbon Accreditation*

- **Launched by ACI Europe in 2009**
- **Also available in Asia-Pacific and Africa regions**
- **ACERT v2.0 approved for *Airport Carbon Accreditation* Level 1 (Mapping) and Level 2 (Reduction)**
- **Independently administered**

4 Water - Use - Triple supply system at Hong Kong (HKG)

Fresh potable water

Sea water – cooling towers/toilets
- ○ Seawater pumping station

Recycled water - irrigation
- Water reclamation plant

Sewerage system
- Separate collection system
- Combined collection system
- Water reclamation plant
- To government sewer

4 Water – Storm Water Management – SeaTac (SEA)

- Capture
- Storage
- Treatment
- Outflow control

5 Waste Management

Identifying waste streams
- Terminal, deplaned, office, maintenance
- Hazardous materials

Reducing waste production
- Awareness

5 Waste Management

Waste Hierarchy
Reuse Recycling
- Paper, cardboard, aluminium, composting

Most Preferable

AVOID
REDUCE
REUSE
RECYCLE
RECOVER
TREAT
DISPOSE

Least Preferable

6 Other Environmental Matters

Planning and Development
- Wildlife and habitat
- Historical and archeological issues

Emergency Planning and Response
- Hazardous Materials
- Spill Management
- Soil and water contamination

Proactive Environmental Initiatives
- Operating and life-cycle costs
- Occupational Health and Safety

Gracias
Thanks

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