



The aviation consultancy of Egis

# BEST PRACTICES IN NOISE MANAGEMENT

COMMISSIONED BY GTAA

CENAC, 27<sup>TH</sup> SEPTEMBER 2017

an  egis company

# PURPOSE OF THIS PRESENTATION

1. Explain the purpose of the study
2. How it was undertaken
3. Present some specific research & proposals
  - Community forums
  - Runway schemes
  - Night flight restrictions
  - Other examples
4. Answer any questions you may have

# GTAA NOISE MANAGEMENT ACTION PLAN (2013-2017)

## RESEARCH

Noise management at other airports

## IDENTIFY

Potential new programs or initiatives for GTAA to pursue that

- └─ Mitigate the impacts of aircraft noise
- └─ Enhance community engagement

## INPUT TO

Next GTAA Noise Management Action Plan  
(2018-2022)

# HOW CONDUCTED

## DESK RESEARCH

- 26 airports
- 11 areas of noise management

## PROPOSALS

- For potential new programs and initiatives
  - Best practices
  - Regulatory & operational environment
  - Best judgement

## OUT OF SCOPE

- Financial costs & resources

## GTAA INPUT

- Airports & areas of noise management
- Briefing on research & review of draft report

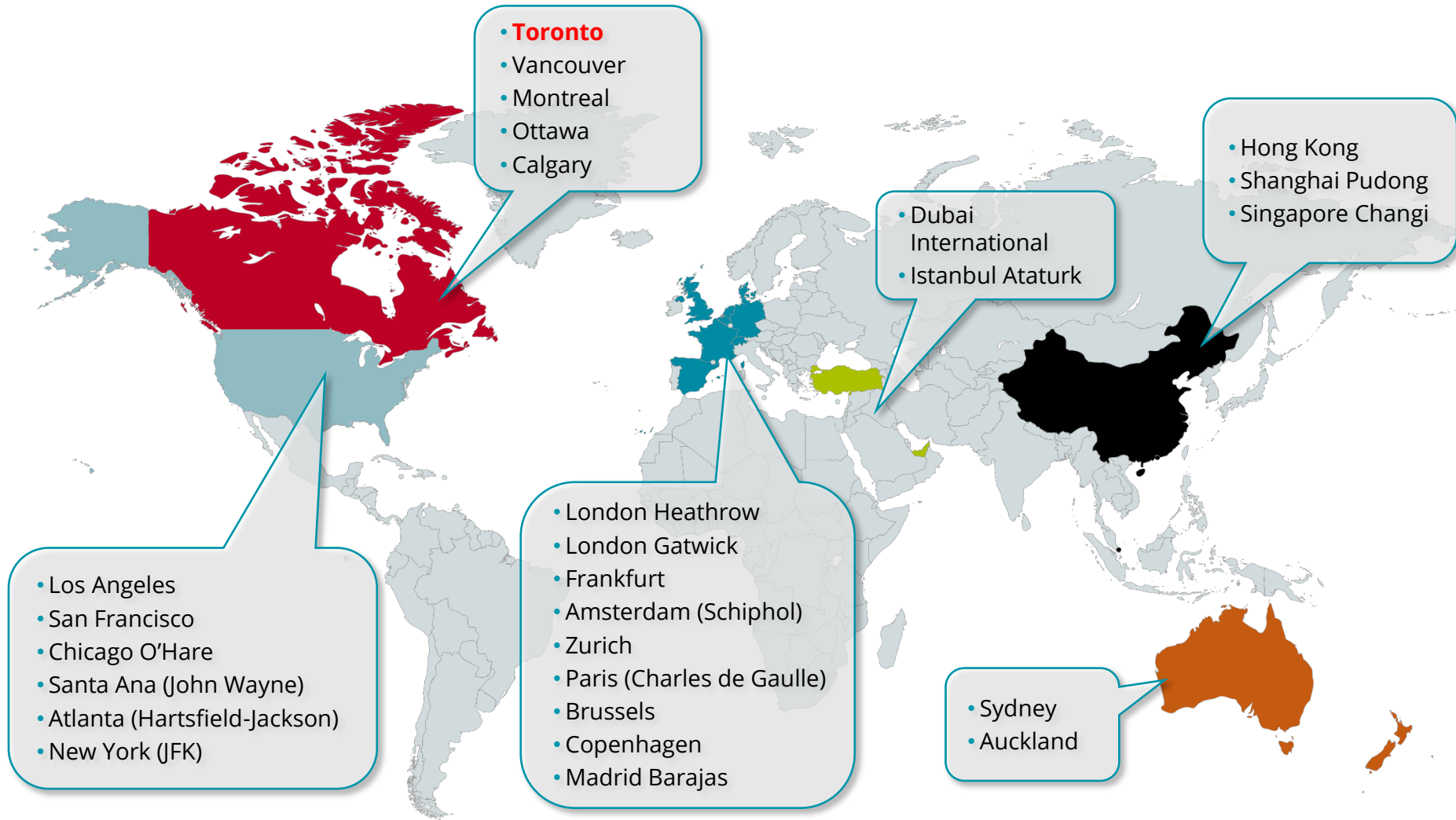
# 26 AIRPORTS RESEARCHED

## CANADIAN AIRPORTS

## TRAFFIC VOLUME

## URBAN ENVIRONMENT

## NOISE MANAGEMENT



# 11 NOISE MANAGEMENT PRACTICES RESEARCHED

Several stakeholders can be involved in each practice

QUIETER FLEET INITIATIVES

NOISE ABATEMENT  
PROCEDURES

NOISE REPORTING &  
METRICS

NIGHT FLIGHT  
RESTRICTIONS

LAND USE PLANNING

FLY QUIET REPORTING

RUNWAY USE

NOISE COMPLAINTS

INDEPENDENT NOISE  
OMBUDSMAN

AIRCRAFT ON THE GROUND

COMMUNITY OUTREACH



Noise management at Toronto already includes practices in these areas



Not part of the existing noise management practices at Toronto

# 11 NOISE MANAGEMENT PRACTICES RESEARCHED

## QUIETER FLEET INITIATIVES

Restricting the noisiest aircraft types, financial mechanisms, A320 family 'whine' (more detail later)

## NIGHT FLIGHT RESTRICTIONS

More stringent operating restrictions at night (more detail later)

## RUNWAY USE

Use of runways to manage noise (more detail later)

## AIRCRAFT ON THE GROUND

Noise from engine tests and parked aircraft

# 11 NOISE MANAGEMENT PRACTICES RESEARCHED

## NOISE ABATEMENT PROCEDURES

Procedures to reduce noise on landing & take-off

## LAND USE PLANNING

Management of land use near an airport & noise insulation schemes

## NOISE COMPLAINTS

How submitted, handled, reported

## COMMUNITY OUTREACH

Forums similar to CENAC at Toronto



# 11 NOISE MANAGEMENT PRACTICES RESEARCHED

## NOISE REPORTING & METRICS

How data from noise monitors is reported to the public

## FLY QUIET

Voluntary publication of airline performance against noise related metrics

## INDEPENDENT NOISE OMBUDSMAN

Independent third party responsible for oversight & intervention

# 30 PROPOSALS DEVELOPED

**Group 1:** Reducing the impact of aircraft noise

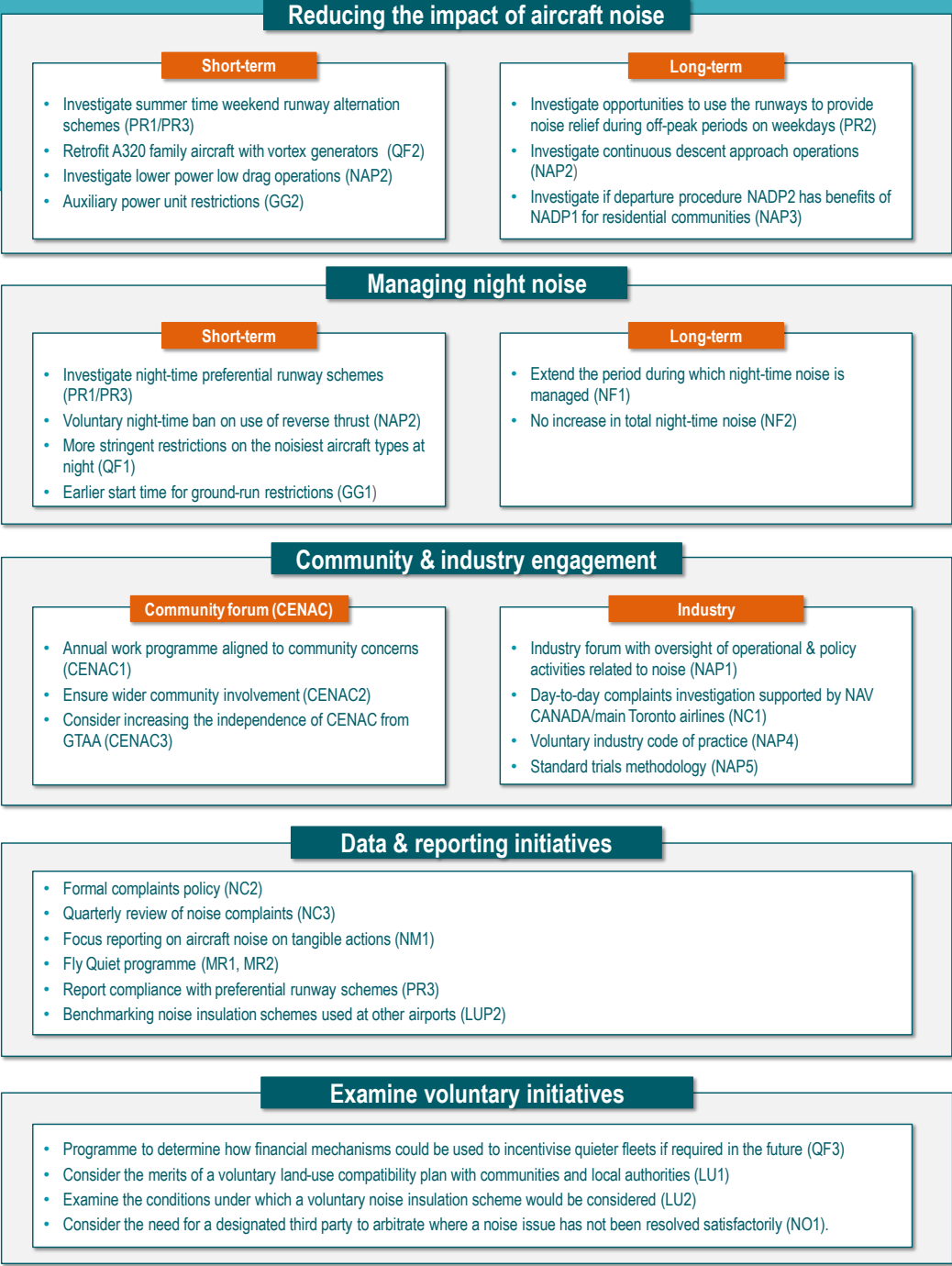
**Group 2:** Managing night noise

**Group 3:** Community & industry engagement

**Group 4:** Data & reporting initiatives

**Group 5:** Examine voluntary initiatives

Some examples from each area follow



# **EXAMPLE 1: REDUCING THE IMPACT OF AIRCRAFT NOISE**

## **- QUIETER FLEET INITIATIVES**

# EXAMPLE 1: REDUCING THE IMPACT OF AIRCRAFT NOISE - QUIETER FLEET INITIATIVES

## OPERATING RESTRICTIONS

Restricting the noisiest aircraft types (at night)  
(Most airports including Toronto)

## NOISE BASED CHARGING

Lower charges for 'quieter' aircraft and at night  
(mainly Europe)

## FINANCIAL INCENTIVES

To introduce quieter aircraft  
(Amsterdam, Zurich)

## A320 FAMILY RETROFIT

To reduce 'whine' on approach  
(Chicago, Frankfurt, Gatwick, Heathrow, Los Angeles, San Francisco)

## FLY QUIET REPORTING

Includes fleet  
(Heathrow, San Francisco, Vancouver)

**Note:** Airlines with aircraft fleets based at Toronto will have less flexibility to quickly deal with changes

# EXAMPLE 1: REDUCING THE IMPACT OF AIRCRAFT NOISE - QUIETER FLEET INITIATIVES

## Proposals

- **Restrictions:** Investigate more stringent restrictions at night
- **A320 retrofit:** Establish programme
- **Financial mechanisms:** Investigate should they be required in the future

## **EXAMPLE 2: REDUCING THE IMPACT OF AIRCRAFT NOISE**

### **- RUNWAY SCHEMES**

# EXAMPLE 2: REDUCING THE IMPACT OF AIRCRAFT NOISE - RUNWAY SCHEMES

## PREFERENTIAL RUNWAYS

Order of priority  
(e.g. Amsterdam, Toronto at night)

## FIXED TIMETABLE

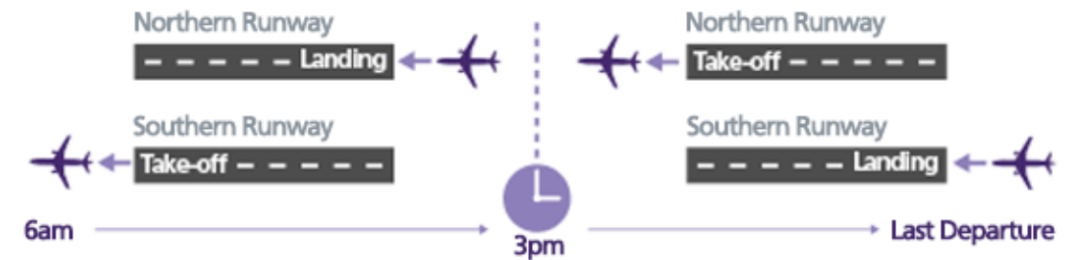
Preferred runways at different times of day  
(e.g. Brussels, Zurich)

## ROTATING TIMETABLE

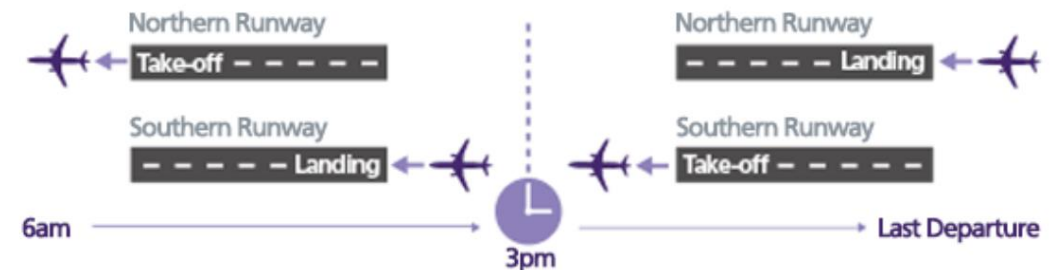
Runway timetable changes (e.g.) weekly  
(e.g. Heathrow, Chicago at night (trial))

[Further examples on the next slide](#)

### Heathrow – week 1 (daytime)



### Heathrow – week 2 (daytime)



# EXAMPLE 2: REDUCING THE IMPACT OF AIRCRAFT NOISE - RUNWAY SCHEMES

## LEAST POPULATED AREAS

Aircraft directed over least populated areas  
(e.g. coastal airports – particularly at night)

## NOISE SHARING

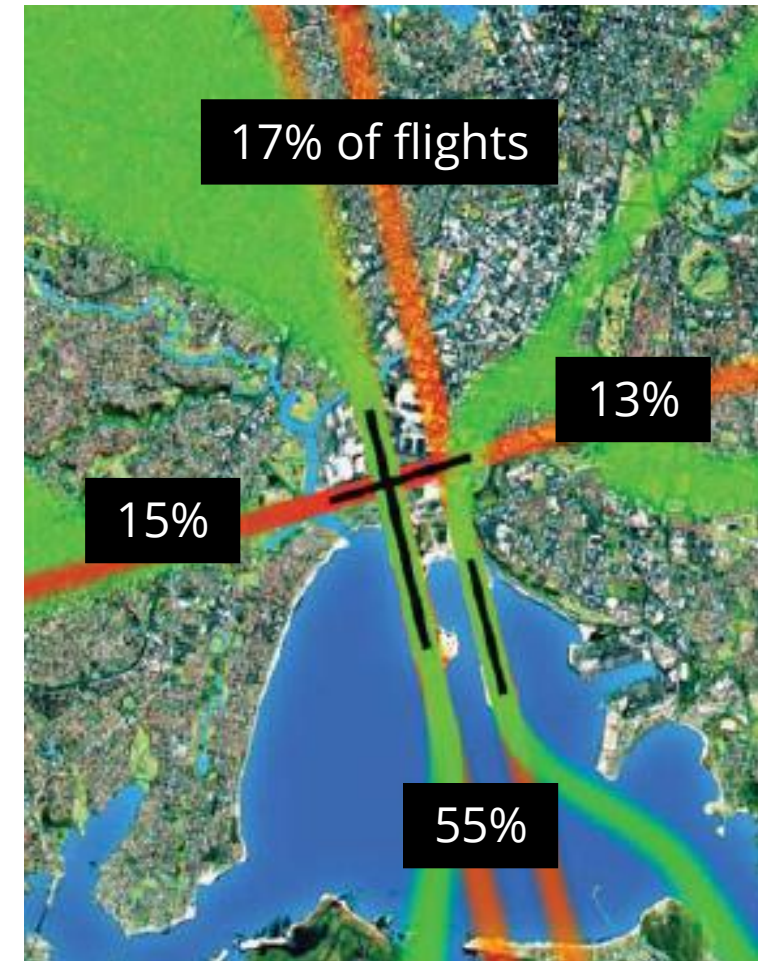
Aims to achieve long-term sharing of noise  
(e.g. Sydney)

## CONFORMANCE

Difficult to achieve 100% conformance, most schemes are therefore voluntary

### Sydney

#### Long Term Operating Plan Targets





# EXAMPLE 2: REDUCING THE IMPACT OF AIRCRAFT NOISE - RUNWAY SCHEMES

## Current GTAA/NAV CANADA work

- **Night time:** Reviewing the existing preferential runway scheme
- **Weekend (summer):** Exploring opportunities for runway alternation scheme

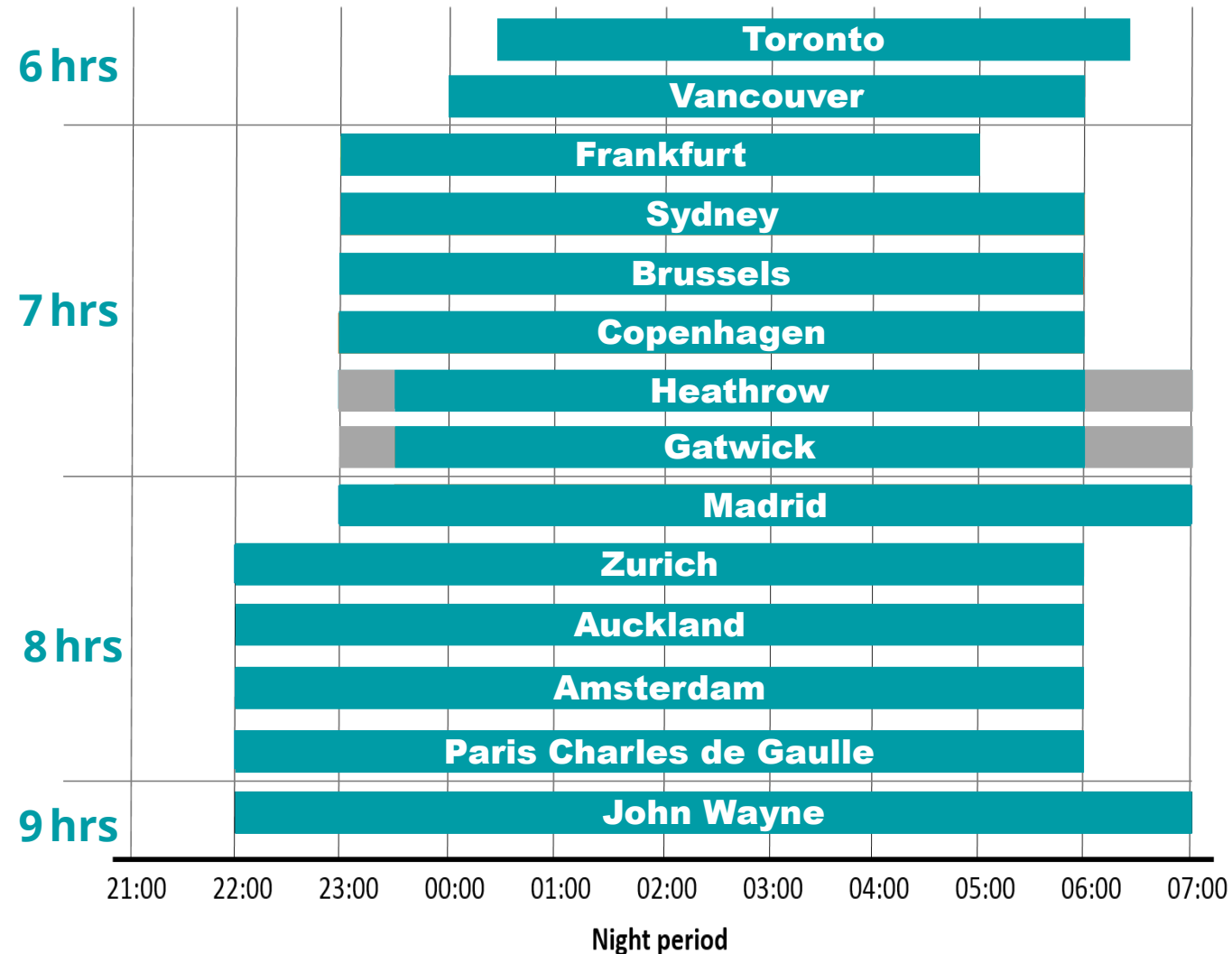
## Proposals

- Continue to investigate
- Requirements
  - **Demonstrate:** Ability to deliver an equitable sharing of noise
  - **Community support:** Receive sufficient support
  - **Conformance:** Demonstrate that a suitable level can be achieved
  - **Public consultation:** Successfully pass
- If implemented define & regularly report against expected conformance

## **EXAMPLE 3: MANAGING NIGHT NOISE**

# EXAMPLE 3: MANAGING NIGHT NOISE

- **Night period:** Different and more stringent set of operating rules compared to the day
- **Summary:** 13 of the 26 airports researched (& Toronto) have such a period



# EXAMPLE 3: MANAGING NIGHT NOISE

NONE

No defined night-time operating rules  
(Mainly Middle/Far East and United States)

AIRCRAFT

Restrictions on older/noisier/heavier aircraft  
(Several including Toronto)

TOTAL NIGHT FLIGHTS

Maximum number of night flights (per year)  
(Toronto, Amsterdam, Brussels, Paris)

“TOTAL NIGHT NOISE”

Maximum night noise ‘generated’ (per year)  
(Brussels, Gatwick, Heathrow, Hong Kong, Madrid)

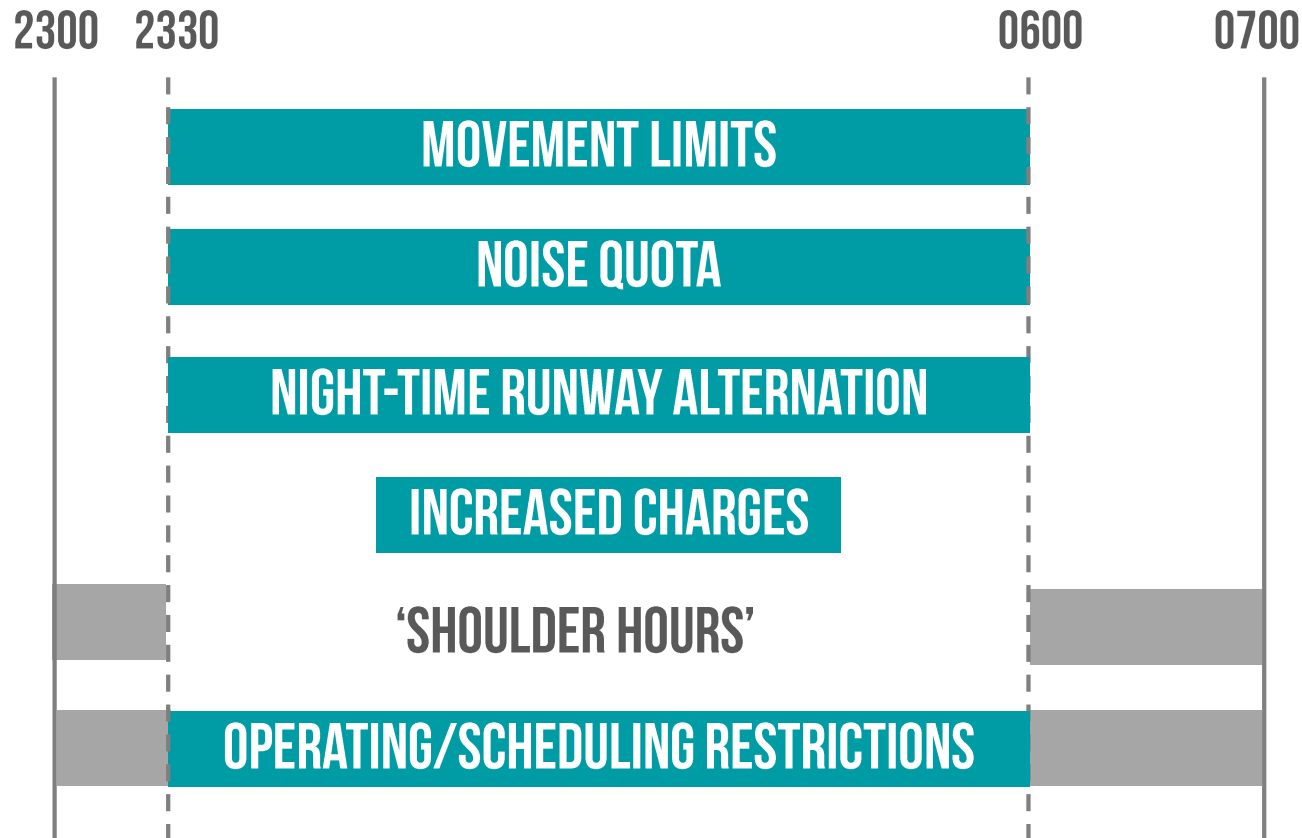
CURFEW

No night flights or very specific rules  
(Frankfurt, Sydney, Zurich)

**Other practices:** Runway schemes and night-time noise charges (Europe)

# EXAMPLE 3: MANAGING NIGHT NOISE

## Heathrow example



## Proposals

- **Night period:** Extend the time over which night-noise impacts are managed (does not necessarily mean applying the current night period rules for a longer duration)
- **Night noise:** Ensure the total amount of night noise does not increase
- Relevant recommendations in the quieter fleet example

## OTHER EXAMPLES

# OTHER EXAMPLES

## ENGAGEMENT

### COMMUNITY FORUM

INCREASED INDEPENDENCE FROM GTAA

WORK PROGRAMME

WIDER COMMUNITY INVOLVEMENT

### INDUSTRY

INDUSTRY FORUM

INDUSTRY CODE OF PRACTICE

## DATA & REPORTING

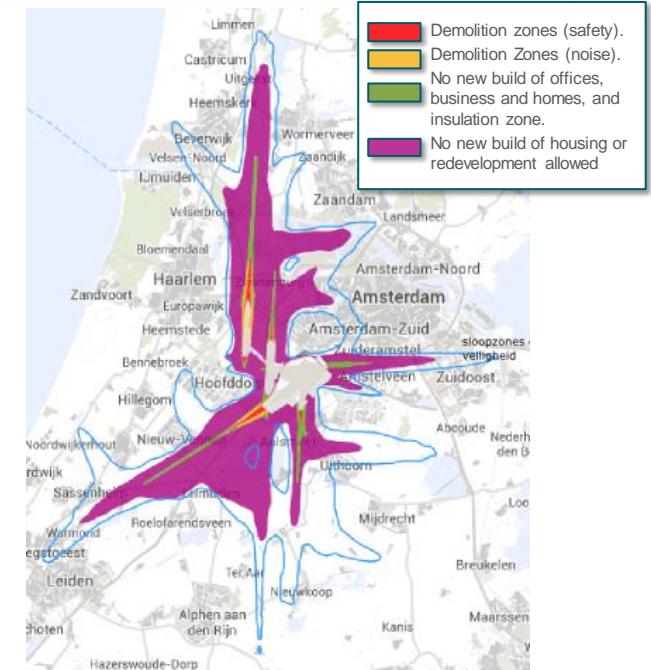


COMPLAINTS POLICY

QUARTERLY REVIEW OF COMPLAINTS

FLY QUIET

## VOLUNTARY INITIATIVES



INVESTIGATE CONDITIONS FOR A VOLUNTARY NOISE INSULATION SCHEME

INVESTIGATE FINANCIAL MECHANISMS (IF REQUIRED)

# SUMMARY

## PURPOSE

- Research noise management initiatives and programs at other airports
- Identify potential new programs or initiatives for GTAA to pursue

## RESEARCH

- 11 noise management practices investigated
- 26 airports reviewed

## OUTPUT

- 30 proposals for potential new programs & initiatives
- Financial costs & resources were out of scope