NOISE MITIGATION USING PBN

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- PBN does bring potential challenges with concentration, but this concentration can also be a valuable noise mitigation tool if used appropriately.

- Concentration not always the right solution, so ‘hybrid’ procedures can provide balance between PBN gains and dispersion where required.

- PBN approach procedures will result in better CDO performance. The resulting increase in altitude providing noise mitigation.
Goal

- Minimize use of the downwinds at night
- Create RNAV approaches that incorporate quieter, continuous descent to the runway
- Design approaches to overfly greenbelt and industrial areas, where possible
- Ensure designs are user friendly for both ATC and customers, to maximise usage
NIGHTTIME ARRIVALS
EXISTING RWY 05 OPERATION
NIGHTTIME RNAV ARRIVALS
NEW RNAV DESIGNS - RWY 05
NIGHTTIME RNAV ARRIVALS
NEW RNAV DESIGNS – RWY 23
NIGHTTIME RNAV ARRIVALS
NEW RNAV DESIGNS – RWY 23

• Changes in population overflown*
  55 dB – 42% reduction (268,700 less people)
  60 dB – 30% reduction (80,830 less people)

• Changes in number of houses overflown*
  55 dB – 125,800 less houses
  60 dB – 36,960 less houses

*Comparison between average/most common existing night approach and Concept RNAV based on 2011 Census data
HYBRID RNAV SIDS
WHEN CONCENTRATION ON INITIAL CLIMB IS NOT VIABLE
RNP-AR APPROACHES - OTTAWA
CONCENTRATING AWAY FROM COMMUNITIES
RNP-AR APPROACHES - CALGARY

AVOIDING AN ENTIRE COMMUNITY
REAL WORLD RESULTS: PROVIDING CONTEXT

› Importance of telling the story.
› Positive changes should be communicated proactively.
REAL WORLD RESULTS: COMMUNITIES

› Measured decreases in noise levels.
› Reduced emissions.
REAL WORLD RESULTS: COMMUNITIES

› Reduced low altitude leveling.
› Aircraft are higher.
REAL WORLD RESULTS: COMMUNITIES

› No complaints associated with changes.
› Growing narrative of support.
REAL WORLD RESULTS: STAKEHOLDERS

› Airline customers are on our deployment teams and promoting benefits to other audiences.

› Airports are now our partners on deployment.
  • Many are developing more robust Noise Management Action Plans and see our application of PBN as a solution.

› Elected officials are telling us that this is the right way to do things.
QUESTIONS