



SEA-TAC GROUND NOISE STUDY

HIGHLINE FORUM

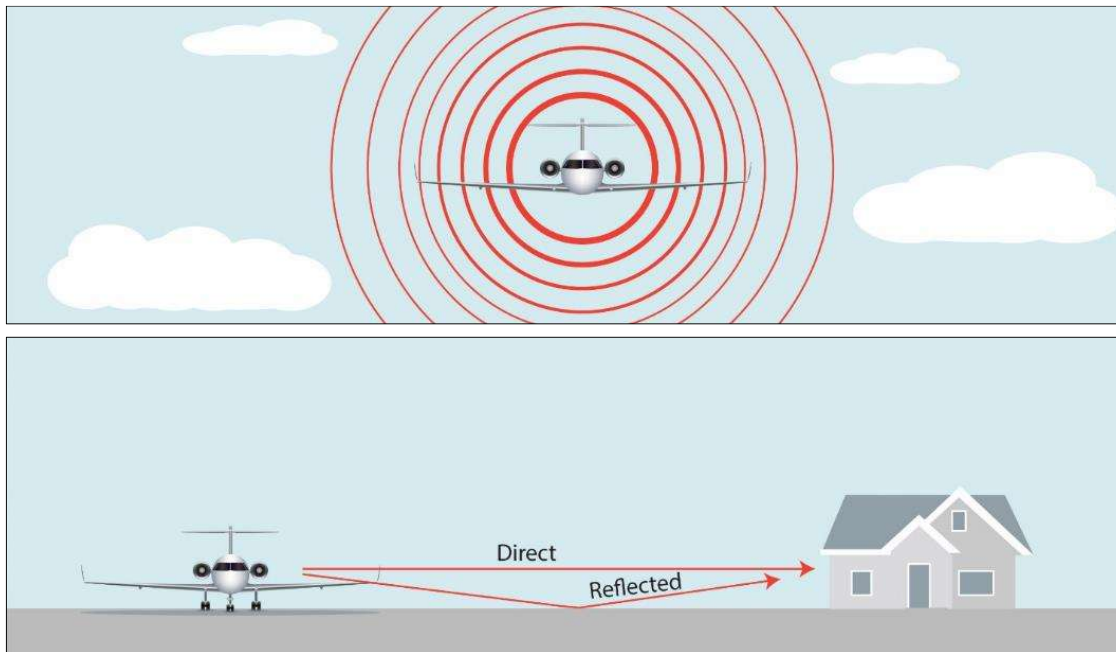
NOVEMBER 20, 2019

SEATTLE-TACOMA INTERNATIONAL AIRPORT

Port
of Seattle

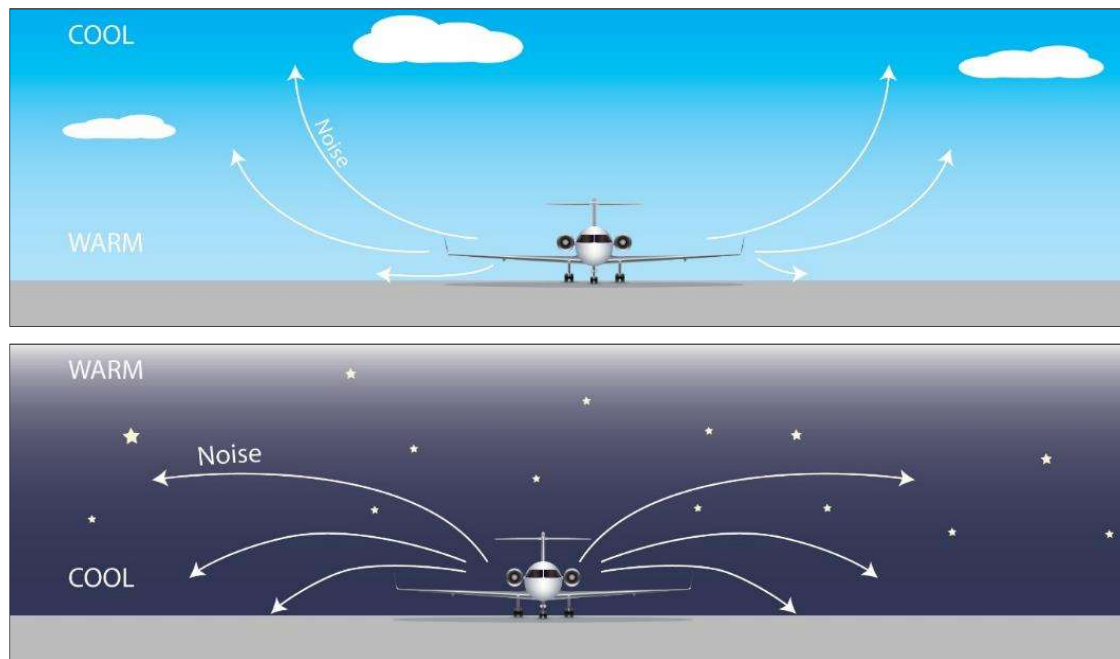
Sound Propagation

- Spherical Spreading
 - Sound level decreases by 6 dB per doubling of distance
 - Additional losses due to atmospheric absorption
- Ground Effect
 - Sound levels are lower when reflected off of soft ground vs. hard ground



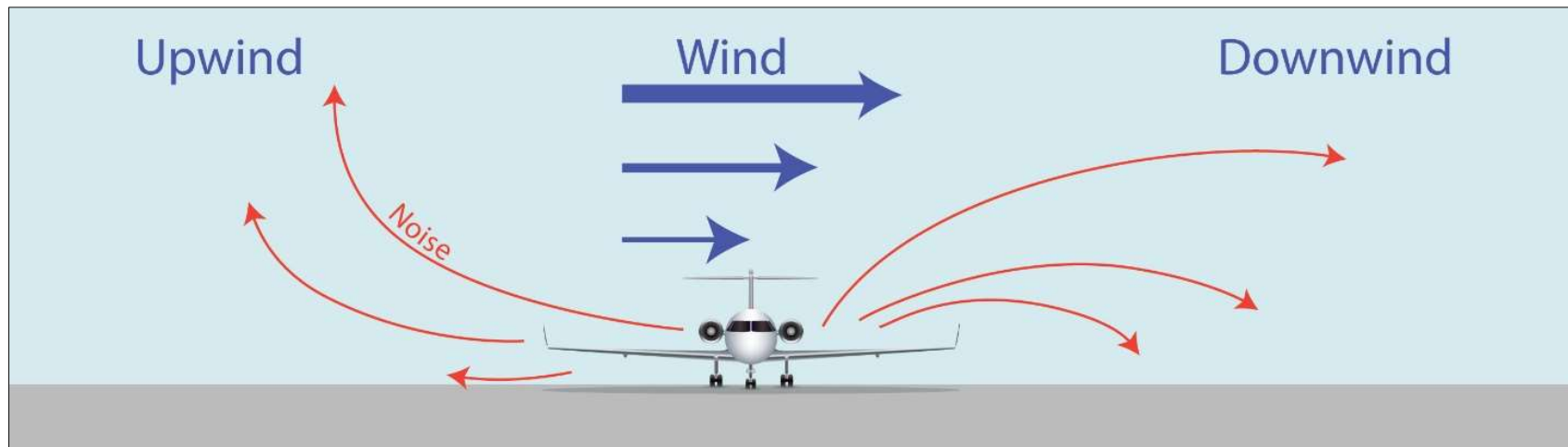
Sound Propagation

- Refraction due to Temperature
 - Gradients in temperature cause the bending of sound paths
 - Sound bends upward during a temperature lapse (cool air over warm)
 - Sound bends downward during a temperature inversion (warm air over cool)



Sound Propagation

- Refraction due to Wind
 - Gradients in wind speed cause the bending of sound paths
 - Sound bends upward causing sound shadows in the upwind direction
 - Sound bends downward increasing sound levels in the downwind direction
 - Differences between upwind and downwind directions can be 20 dB



Ground Noise Study Scope

- Ground Noise Data Research
 - Meet with StART
 - Identify ground noise sources and locations
 - Identify atmospheric conditions that may increase ground noise
- Noise Monitoring
 - Obtain and analyze data from permanent monitors
 - Collect and analyze additional temporary noise monitoring data
- Identify Mitigation Options
 - Present findings on ground noise sources and levels and solicit input on mitigation measures
 - May include changes in aircraft operating procedures or utilization of new or existing structures to reduce community noise exposure
- Report Project Results

Aircraft Ground Noise Sources Discussion

- Taxi/Idle
- Auxiliary Power Units (APUs)
- Engine Maintenance Run-ups
- Ground Service Equipment
- Reverse Thrust



Noise Monitoring Discussion

- Locations
- Times of Day





QUESTIONS



www.portseattle.org/sea-tac

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THANK YOU!