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NARRATOR: Air transportation is vital to our economic health and quality of life,

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00:00:04,001 --> 00:00:08,001

but that prosperity comes at a price: noise pollution.

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Many components of an aircraft contribute to noise pollution,

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00:00:11,003 --> 00:00:14,003

particularly the nozzles of jet engines.

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The exhaust gases exiting the engine through the nozzle are

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a significant source of noise, particularly on takeoff.

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00:00:21,006 --> 00:00:25,006

Nozzles produce hot, high speed air that contributes to thrust.

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This air interacts with the ambient air - cooler,

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and traveling at a lower speed. You can hear the result...

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SFX: SCREECH on takeoff

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00:00:33,010 --> 00:00:37,010

NASA has developed the computational tools to first develop

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00:00:37,011 --> 00:00:41,011

an understanding of noise, its sources, and how it is created.

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From this has come a new generation of engines, designed with quiet in mind.

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With the goal to keep noise inside the airport boundaries,

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NASA research has produced a variety of technology solutions,

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including seamless, acoustic duct liners to keep sound from

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bouncing off seams inside the engine inlet, and the use of

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asymmetrical chevrons, scalloped or serrated edges,

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surrounding the engine core and exhaust.

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00:01:06,019 --> 00:01:09,019

Reducing fan speed and exit velocities on nozzles

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00:01:09,020 --> 00:01:12,020

will also reduce generated noise levels.

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00:01:12,021 --> 00:01:15,021

These NASA-inspired technology solutions are helping to reduce

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00:01:15,022 --> 00:01:18,022

the noise impact on communities abutting airports,