

# SNA NADP Analysis Summary

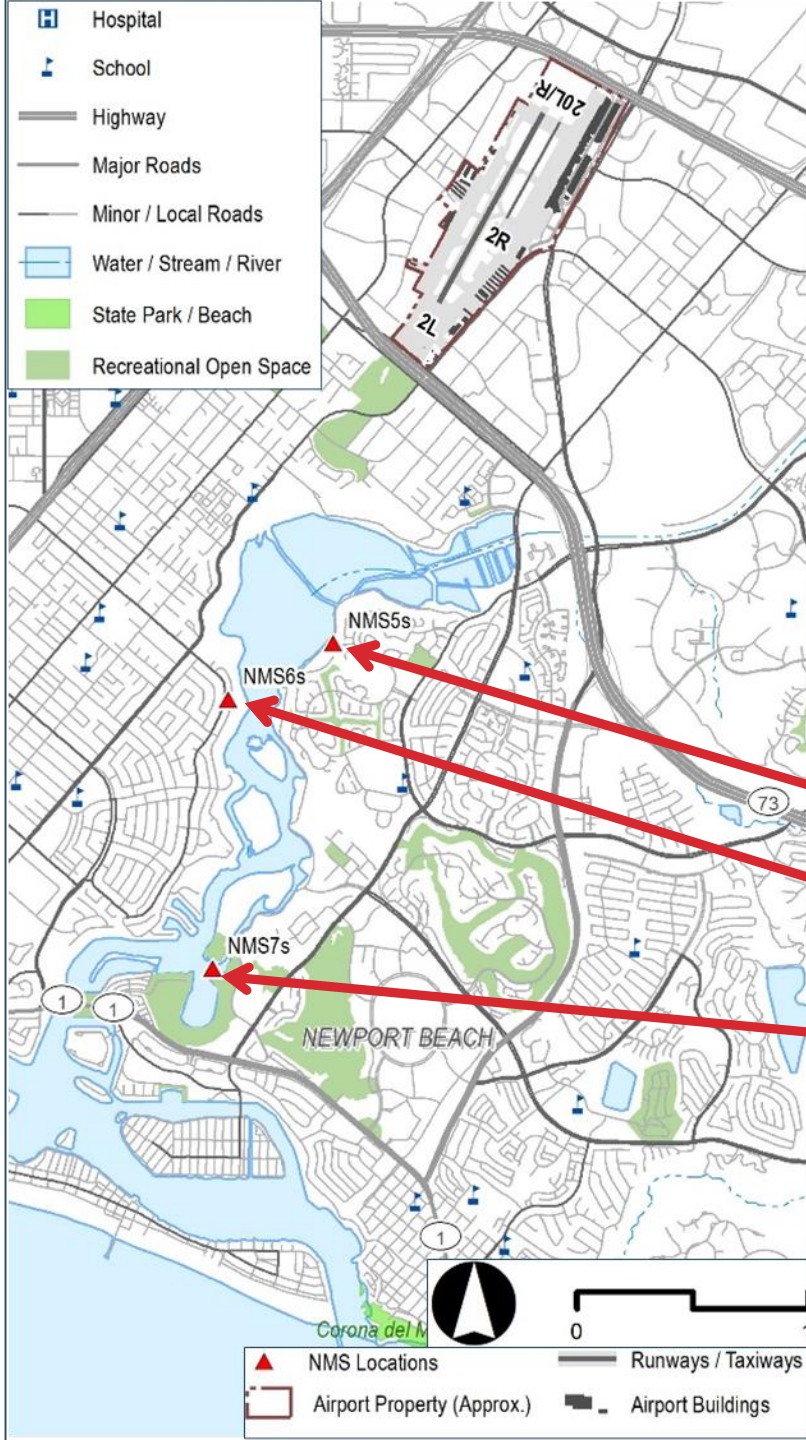
HMMH Project Number 309680  
Task 2

Presentation by Justin W. Cook  
July 27, 2020

# Goal of Task 2

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- Determine if there are improvements to NADP-1 or NADP-2 to reduce noise levels at NMS 5s, 6s, and 7s by comparing measured and modeled data at those locations



# Noise Monitor Locations

- HMMH used the FAA's Aviation Environmental Design Tool (AEDT) (Version 2d) to model noise levels for various scenarios at:

- **NMS 5s**

- **NMS 6s**

- **NMS 7s**

# Modeling

Aircraft Operations

2,257 Modeled

Time of Day

7:00 a.m. and 9:00 a.m.

Temperature

65° F

Sea-level Pressure

1015.38 Millibars

Relative Humidity

69.45%

Dew Point

52.96° F

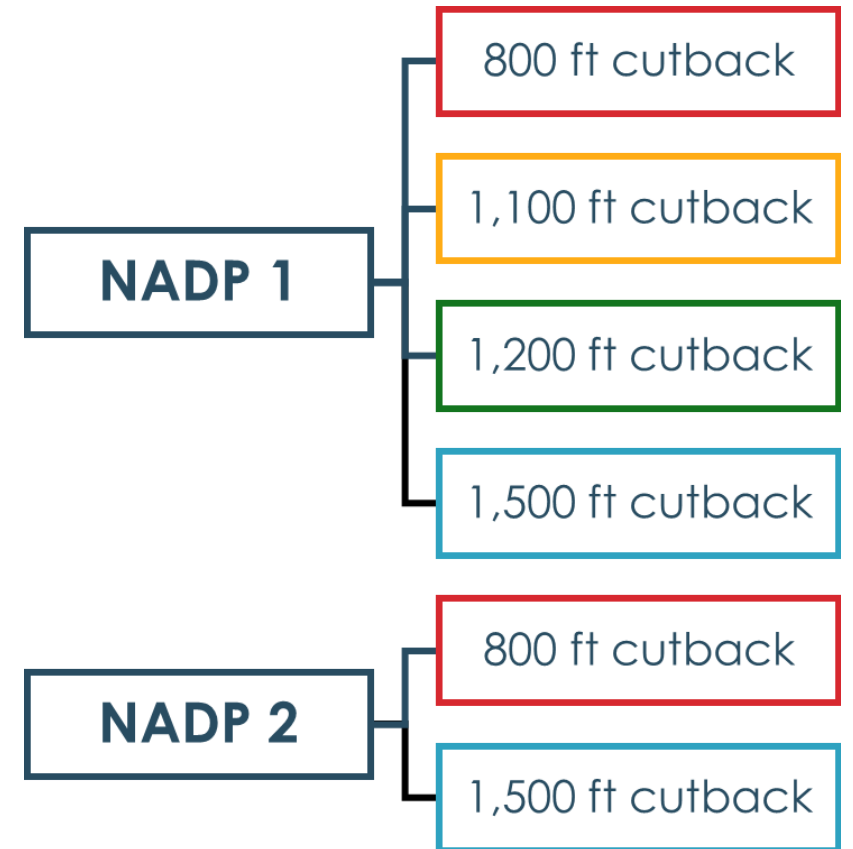
Wind Speed

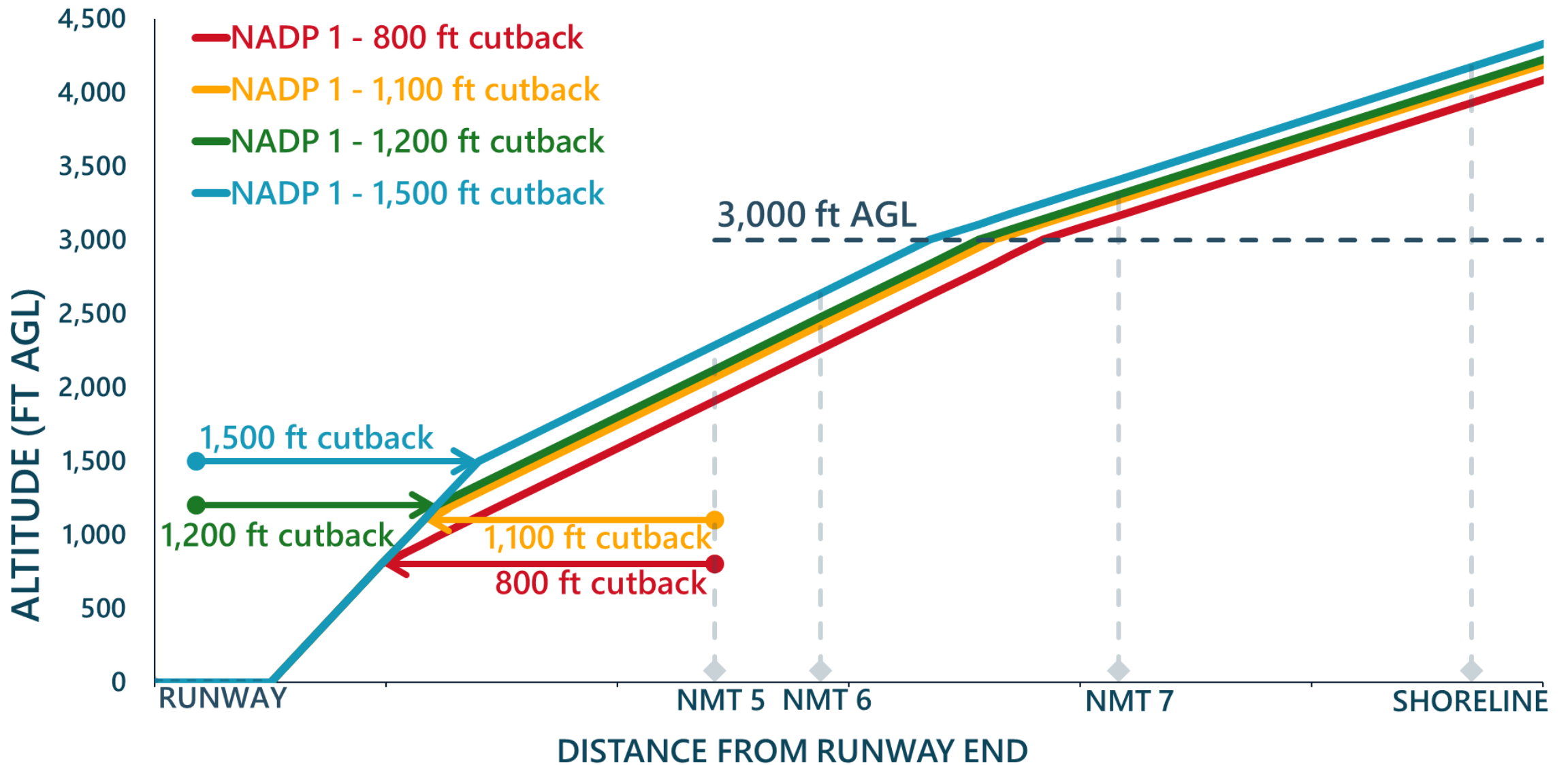
5.54 knots

# Aircraft Analyzed

- 1) Boeing 737-700
- 2) Boeing 737-800
- 3) Airbus A319
- 4) Airbus A320

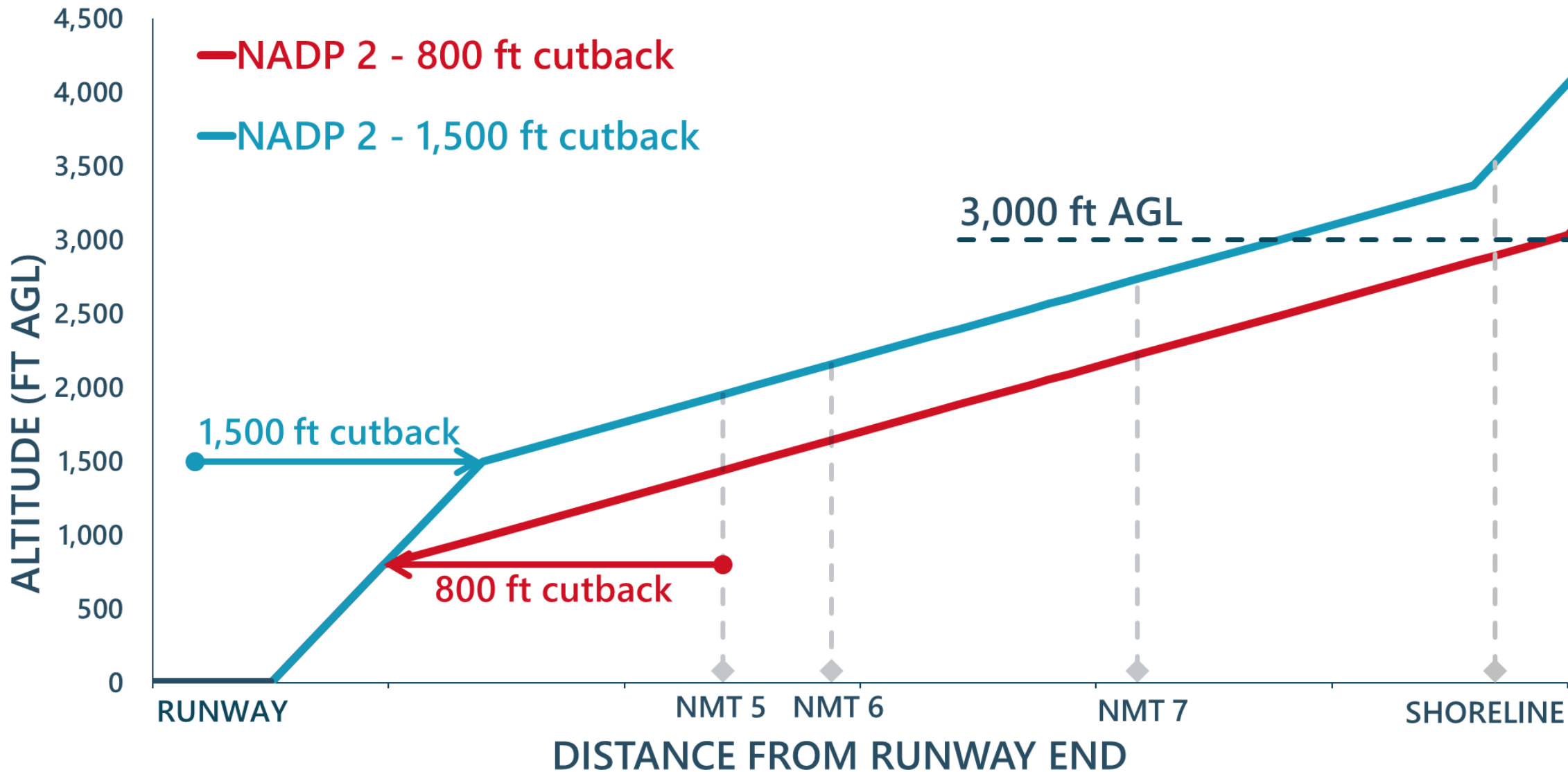
# Scenarios Analyzed





# NADP 1 – 800, 1,100, 1,200, and 1,500 ft Cutbacks





## NADP 2: 800 ft and 1,500 ft Cutbacks

■ Measured, 10/2017 to 1/2018 
 ■ Measured, 3/2019 
 ■ Measured, 7/2019 to 9/2019 
 ■ Modeled, N/A

Cutback		NMS 5s				NMS 6s				NMS 7s				
		A319	A320	B737	B738	A319	A320	B737	B738	A319	A320	B737	B738	
NADP-1	800 ft	Measured	84.4	85.0	90.2	90.0	85.6	86.6	90.8	90.6	81.7	83.1	87.2	88.3
		Modeled	83.0	83.2	89.6	89.1	84.5	87.4	89.9	89.0	81.4	84.8	87.2	86.4
	1,100 ft	Modeled	82.8	83.0	89.5	89.0	84.3	87.1	89.9	88.8	81.4	84.5	87.2	86.4
		Modeled	82.7	82.9	89.5	89.0	84.3	87.1	89.8	88.8	81.3	84.4	87.2	86.3
	1,500 ft	Measured	86.3	86.6	91.5	91.4	86.6	86.5	91.2	90.5	82.2	83.0	87.2	86.6
		Modeled	84.8	85.3	90.2	90.1	85.1	85.6	90.1	89.6	79.5	80.4	85.4	85.8
	Modeled	82.7	83.1	89.7	89.2	84.2	87.2	89.8	89.1	81.2	84.2	87.2	86.2	
	NADP-2	800 ft	Measured	85.1	85.7	89.5	89.1	86.7	88.0	90.4	90.0	84.7	86.1	85.7
Modeled			84.4	85.0	90.2	90.0	85.6	86.6	90.8	90.6	81.7	83.1	87.2	88.3
1,500 ft		Modeled	83.6	87.3	88.3	88.9	84.6	87.5	89.8	89.1	82.9	85.5	87.2	86.2

# Results





		Measured, 10/2017 to 1/2018	Measured, 3/2019	Measured, 7/2019 to 9/2019	Modeled, N/A									
		NMS 5s				NMS 6s				NMS 7s				
Cutback		A319	A320	B737	B738	A319	A320	B737	B738	A319	A320	B737	B738	
NADP-1	800 ft	Measured	84.4	85.0	90.2	90.0	85.6	86.6	90.8	90.6	81.7	83.1	87.2	88.3
		Modeled	83.0	83.2	89.6	89.1	84.5	87.4	89.9	89.0	81.4	84.8	87.2	86.4
	1,100 ft	Modeled	82.8	83.0	89.5	89.0	84.3	87.1	89.9	88.8	81.4	84.5	87.2	86.4
	1,200 ft	Modeled	82.7	82.9	89.5	89.0	84.3	87.1	89.8	88.8	81.3	84.4	87.2	86.3
	1,500 ft	Measured	86.3	86.6	91.5	91.4	86.6	86.5	91.2	90.5	82.2	83.0	87.2	86.6
		Modeled	84.8	85.3	90.2	90.1	85.1	85.6	90.1	89.6	79.5	80.4	85.4	85.8
NADP-2	800 ft	Measured	85.1	85.7	89.5	89.1	86.7	88.0	90.4	90.0	84.7	86.1	85.7	86.1
		Modeled	84.4	85.0	90.2	90.0	85.6	86.6	90.8	90.6	81.7	83.1	87.2	88.3
	1,500 ft	Modeled	83.6	87.3	88.3	88.9	84.6	87.5	89.8	89.1	82.9	85.5	87.2	86.2

# Results



■ Measured, 10/2017 to 1/2018 
 ■ Measured, 3/2019 
 ■ Measured, 7/2019 to 9/2019 
 ■ Modeled, N/A

Cutback			NMS 5s				NMS 6s				NMS 7s			
			A319	A320	B737	B738	A319	A320	B737	B738	A319	A320	B737	B738
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		Modeled	83.0	83.2	89.6	89.1	84.5	87.4	89.9	89.0	81.4	84.8	87.2	86.4
	1,100 ft	Modeled	82.8	83.0	89.5	89.0	84.3	87.1	89.9	88.8	81.4	84.5	87.2	86.4
		Modeled	82.7	82.9	89.5	89.0	84.3	87.1	89.8	88.8	81.3	84.4	87.2	86.3
	1,500 ft	Measured	86.3	86.6	91.5	91.4	86.6	86.5	91.2	90.5	82.2	83.0	87.2	86.6
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NADP-2	800 ft	Measured	85.1	85.7	89.5	89.1	86.7	88.0	90.4	90.0	84.7	86.1	85.7	86.1
		Modeled	84.4	85.0	90.2	90.0	85.6	86.6	90.8	90.6	81.7	83.1	87.2	88.3
	1,500 ft	Modeled	83.6	87.3	88.3	88.9	84.6	87.5	89.8	89.1	82.9	85.5	87.2	86.2

# Results



		Measured, 10/2017 to 1/2018	Measured, 3/2019	Measured, 7/2019 to 9/2019	Modeled, N/A									
Cutback		NMS 5s				NMS 6s				NMS 7s				
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		Modeled	83.0	83.2	89.6	89.1	84.5	87.4	89.9	89.0	81.4	84.8	87.2	86.4
	1,100 ft	Modeled	82.8	83.0	89.5	89.0	84.3	87.1	89.9	88.8	81.4	84.5	87.2	86.4
		Modeled	82.7	82.9	89.5	89.0	84.3	87.1	89.8	88.8	81.3	84.4	87.2	86.3
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		Measured	85.1	85.7	89.5	89.1	86.7	88.0	90.4	90.0	84.7	86.1	85.7	86.1
	1,500 ft	Modeled	84.4	85.0	90.2	90.0	85.6	86.6	90.8	90.6	81.7	83.1	87.2	88.3
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	1,100 ft	Modeled	82.8	83.0	89.5	89.0	84.3	87.1	89.9	88.8	81.4	84.5	87.2	86.4
	1,200 ft	Modeled	82.7	82.9	89.5	89.0	84.3	87.1	89.8	88.8	81.3	84.4	87.2	86.3
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		Measured	85.1	85.7	89.5	89.1	86.7	88.0	90.4	90.0	84.7	86.1	85.7	86.1
	Modeled	84.4	85.0	90.2	90.0	85.6	86.6	90.8	90.6	81.7	83.1	87.2	88.3	
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# Results

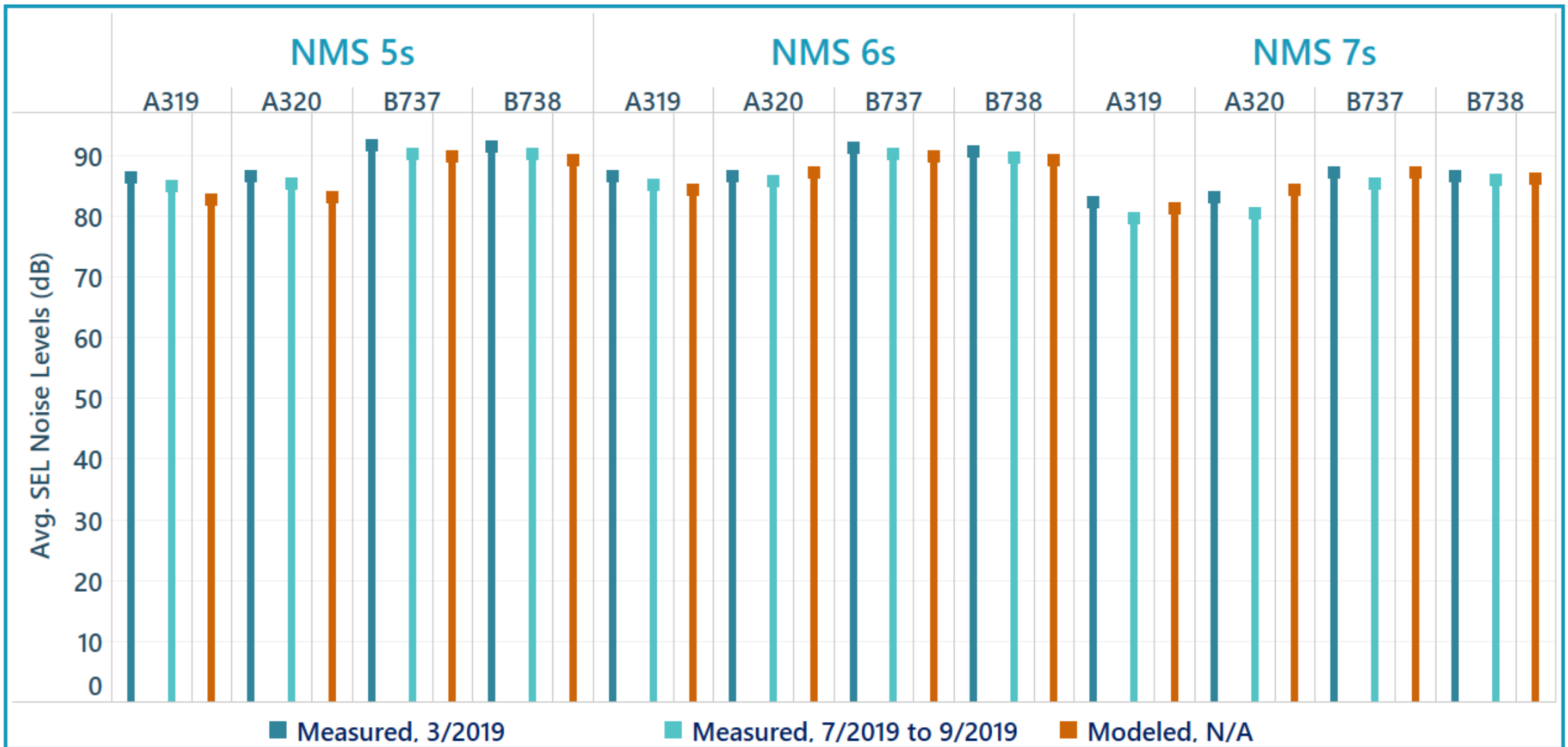




		Measured, 10/2017 to 1/2018	Measured, 3/2019	Measured, 7/2019 to 9/2019	Modeled, N/A									
Cutback		NMS 5s				NMS 6s				NMS 7s				
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NADP-1	800 ft	Measured	84.4	85.0	90.2	90.0	85.6	86.6	90.8	90.6	81.7	83.1	87.2	88.3
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NADP-2	800 ft	Modeled	82.7	83.1	89.7	89.2	84.2	87.2	89.8	89.1	81.2	84.2	87.2	86.2
		Measured	85.1	85.7	89.5	89.1	86.7	88.0	90.4	90.0	84.7	86.1	85.7	86.1
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1,500 ft	Modeled	83.6	87.3	88.3	88.9	84.6	87.5	89.8	89.1	82.9	85.5	87.2	86.2	

# Results





# Sample Results: NADP 1 – 1,500 ft cutback

## Summary of Results

- Little to no noise level differences between modeled NADP-1 scenarios with varying cutbacks
- NADP-1 with a 1,500-foot cutback measured (July-September 2019) and modeled data correlate very well
- Comparing modeled data; NADP-1 with 1,500-foot cutback generally had lower noise levels at NMS 5s, 6s, and 7s
- Comparing measured data; NADP-1 with 1,500-foot cutback generally had lower noise levels at NMS 6s and 7s, but slight increase at 5s with Boeing aircraft types