

Fly Quiet and Noise Abatement Program Update

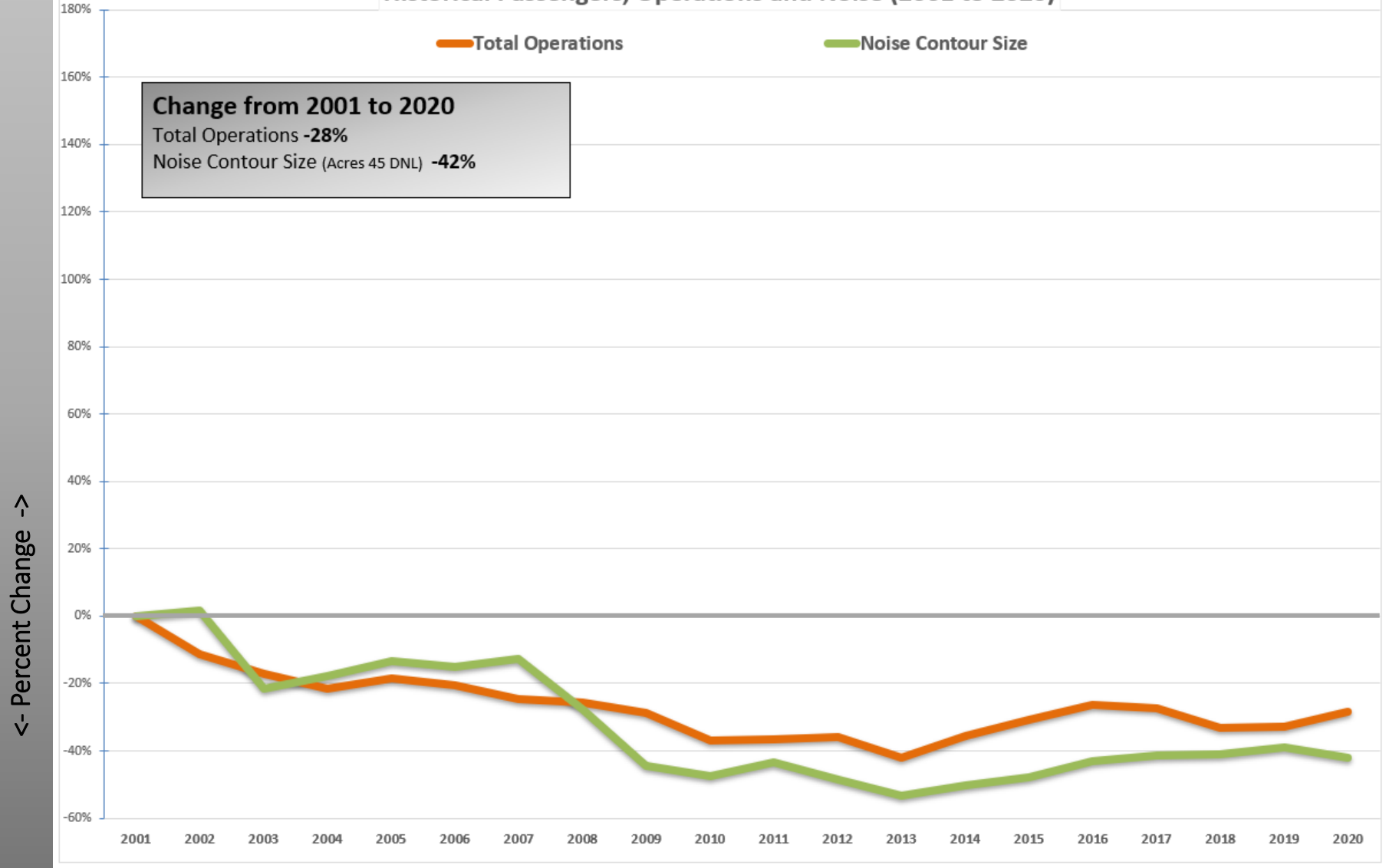
Jackson Hole Airport

June 14, 2021



Historical Comparison

Historical Passengers, Operations and Noise (2001 to 2020)



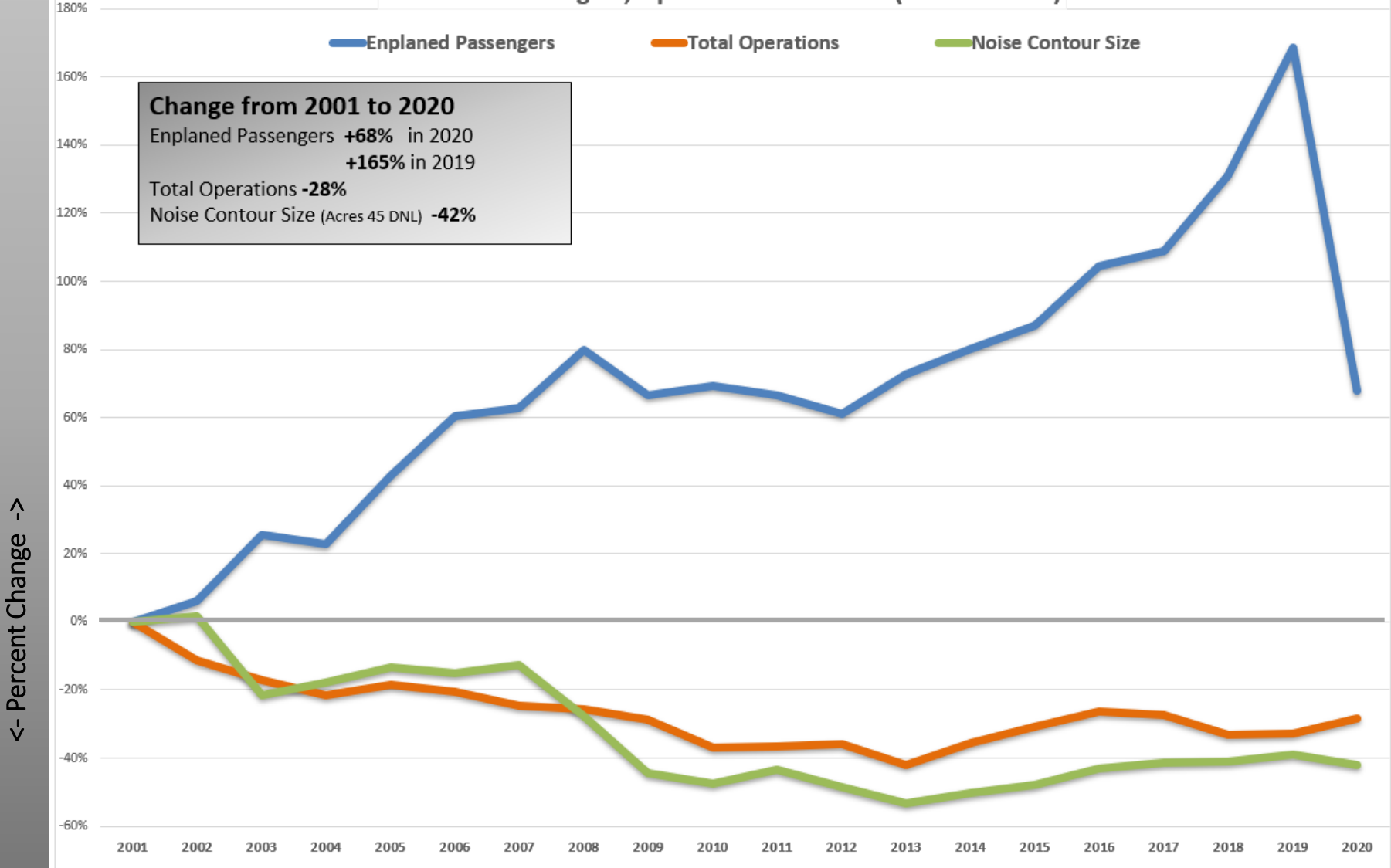
Change from 2001 to 2020
Total Operations **-28%**
Noise Contour Size (Acres 45 DNL) **-42%**



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Enplaned Passengers **+68%** in 2020
+165% in 2019
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Historical Comparison

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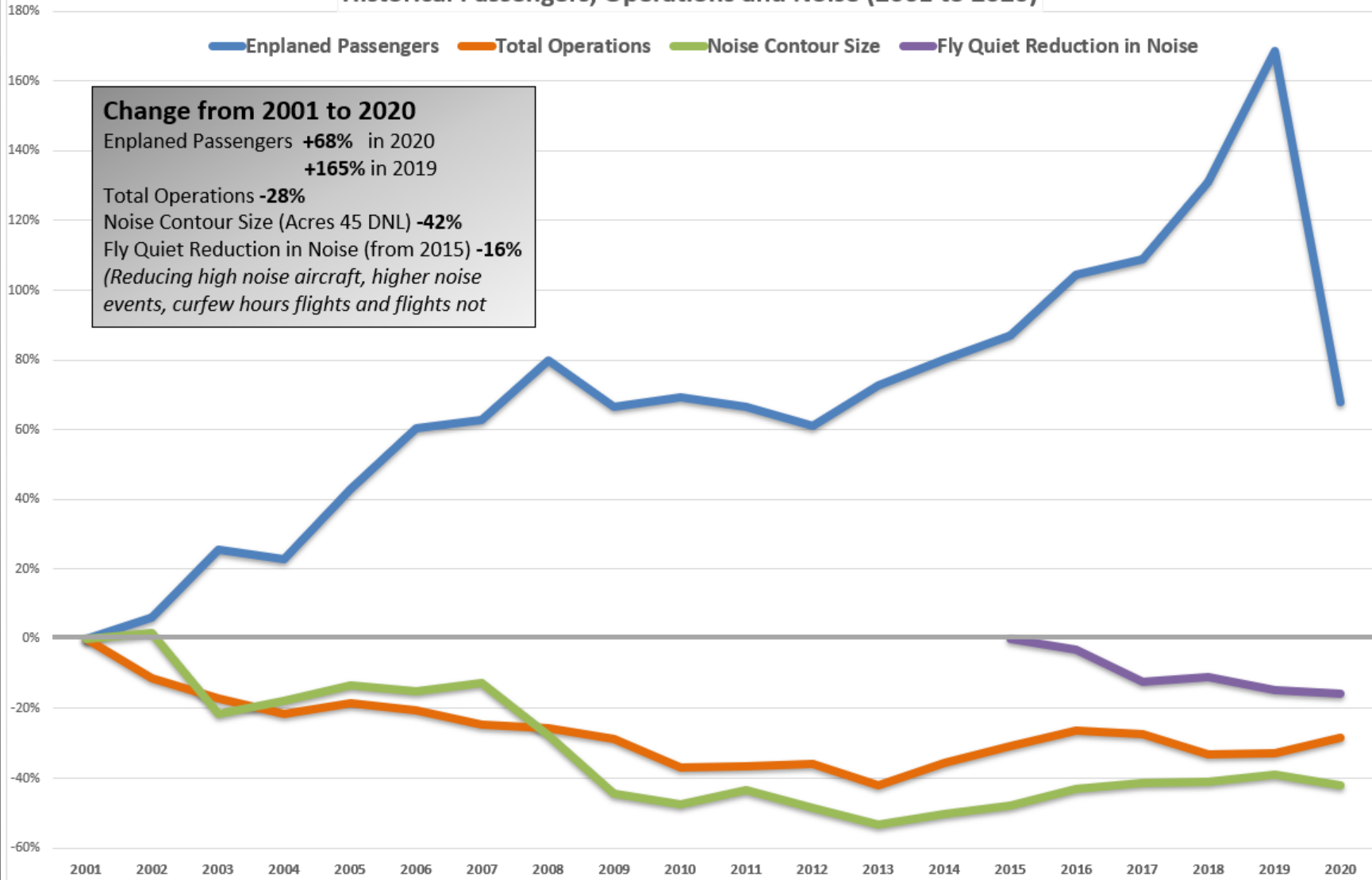
Enplaned Passengers Total Operations Noise Contour Size Fly Quiet Reduction in Noise

Change from 2001 to 2020

Enplaned Passengers **+68%** in 2020
+165% in 2019

Total Operations **-28%**
 Noise Contour Size (Acres 45 DNL) **-42%**
 Fly Quiet Reduction in Noise (from 2015) **-16%**
(Reducing high noise aircraft, higher noise events, curfew hours flights and flights not

<- Percent Change ->





Incentivize operators to fly as quietly as possible with the quietest available aircraft and adhere to the airport's noise abatement programs to minimize noise impacts.



❖ **1983 Use Agreement with Department of Interior**

- Restricts the noise levels the airport can generate in the Park
- Requires Board to have a Noise Control Plan for life of Agreement
- Requires Board to “incorporate new prudent and feasible technological advances which would allow further reduction in noise impact on Grand Teton National Park”
 - CFR Part 150 Studies have provided framework
- 2011 Amendment: Add requirement to work with NPS to develop and implement reasonable and cost-effective mitigation measures to reduce environmental effects on the Park



- Existing Airport Access Restrictions*
 - Use Agreement with the DOI that limits overall noise in the Park
 - *Critical Area Boundary -- 45 DNL*
 - *Moose site – 55 DNL*
 - Commercial Airline Access Plan to comply with Use Agreement
 - Single event noise limit restricting loudest aircraft
 - *92 dBA certificated noise limit on approach*
 - Congressionally enacted Stage 2 Aircraft Ban

*As a result of the *Airport Noise and Capacity Act (ANCA)* and other federal regulations, an Airport cannot unilaterally implement access requirements that restrict the type, number, how, or when an aircraft operates at an airport. Historical access restrictions, such as Jackson Hole's, can continue but cannot be modified or made more stringent. Fly Quiet must be voluntary to not be in violation of ANCA.



What we've accomplished since the Use Agreement

- Voluntary curfew to restrict both late-night and early morning aircraft operations
- Restrictions to limit late-night and early morning scheduled commercial operations
- Partner with FAA in the development of new flight procedures to reduce noise
 - ***NEW: New Procedures under development per Part 150***
- Noise monitoring/flight tracking system updates
 - Track adherence to existing and future noise abatement procedures
 - Monitor Use Agreement compliance
 - Monitor metrics to enhance the system over time
 - Installation of BI-6 radar and local ADS-B surveillance to enhance flight track monitoring
- ***NEW: Development of Fly Quiet Program per Part 150***



Fly Quiet Program Elements

Category	Goal	Measure
Fleet Quality	Acknowledge/encourage operators to fly the quietest aircraft	<ul style="list-style-type: none">• FAA Aircraft Certificated Stage Noise Level• Stage 5 is considered highest score (100%)
Minimize Higher Noise Events	Minimize the highest aircraft noise events from individual overflights	<ul style="list-style-type: none">• Track % higher noise events per total operations• Zero high events the highest score (100%)
Minimize Violation of Voluntary Curfew	<p>Rated upon number of times an operation occurred during the voluntary curfew hours</p> <p>11:30 pm to 6 am for arrivals 10 pm to 6 am for departures</p>	<ul style="list-style-type: none">• Number of flights in curfew hours• <u>Low score</u> is based upon <u>greater number</u> of curfew violations• Zero curfew operations is highest score (100%)
Flight Procedure Compliance	Three procedures evaluated with results combined into one score	<ul style="list-style-type: none">• Rated on % of flights following procedure goal• Full compliance is the highest score (100%)



FLY QUIET RATING	FLY QUIET
FQ Top Tier	90% - 100%
FQ Compliant	70% - 90%
FQ Non Compliant	0% - 70%

❖ Scoring System

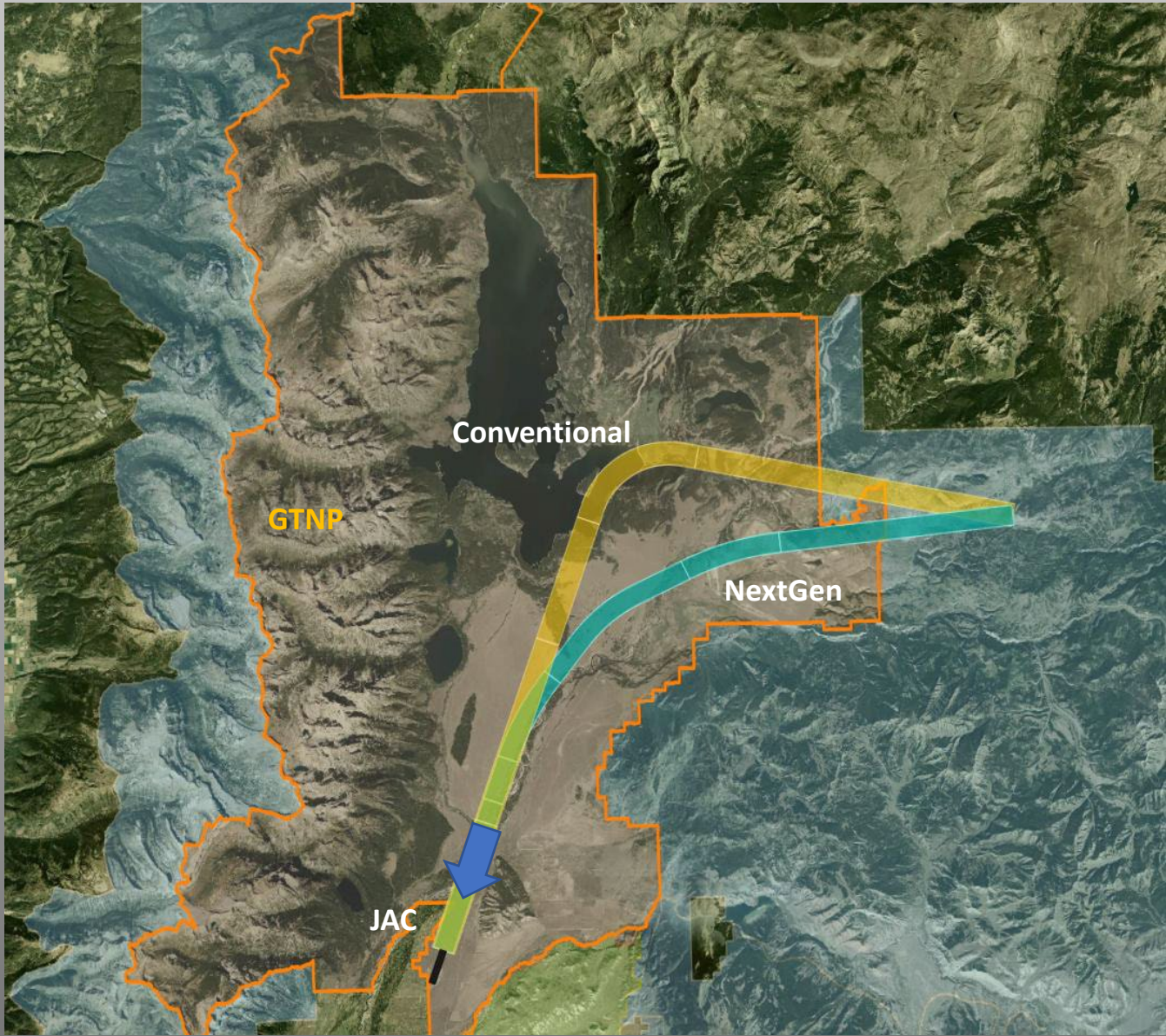
- Results scaled on a 0-100% scoring system
- **100%** is considered the best possible in each category
- Overall best score is the highest average of all 4 categories

❖ Notifications and Acknowledgements

- Both Best and Poor operators in each category below and most improved

CATEGORY OF JET OPERATOR	CLASSIFICATION BY NUMBER OF ANNUAL OPERATIONS
Commercial and Regional Jet Airlines	Minimum of 8 operations
Part 135 Business Jets (fleets, fractional ownership)	-Operators with 30 or more flights -Operators with less than 30
Single Jet Owner/ Operator (i.e., N1234)	-Operators with 30 or more flights -Operators with less than 30

South Arrival Procedures over GTNP (Conventional and NextGen)



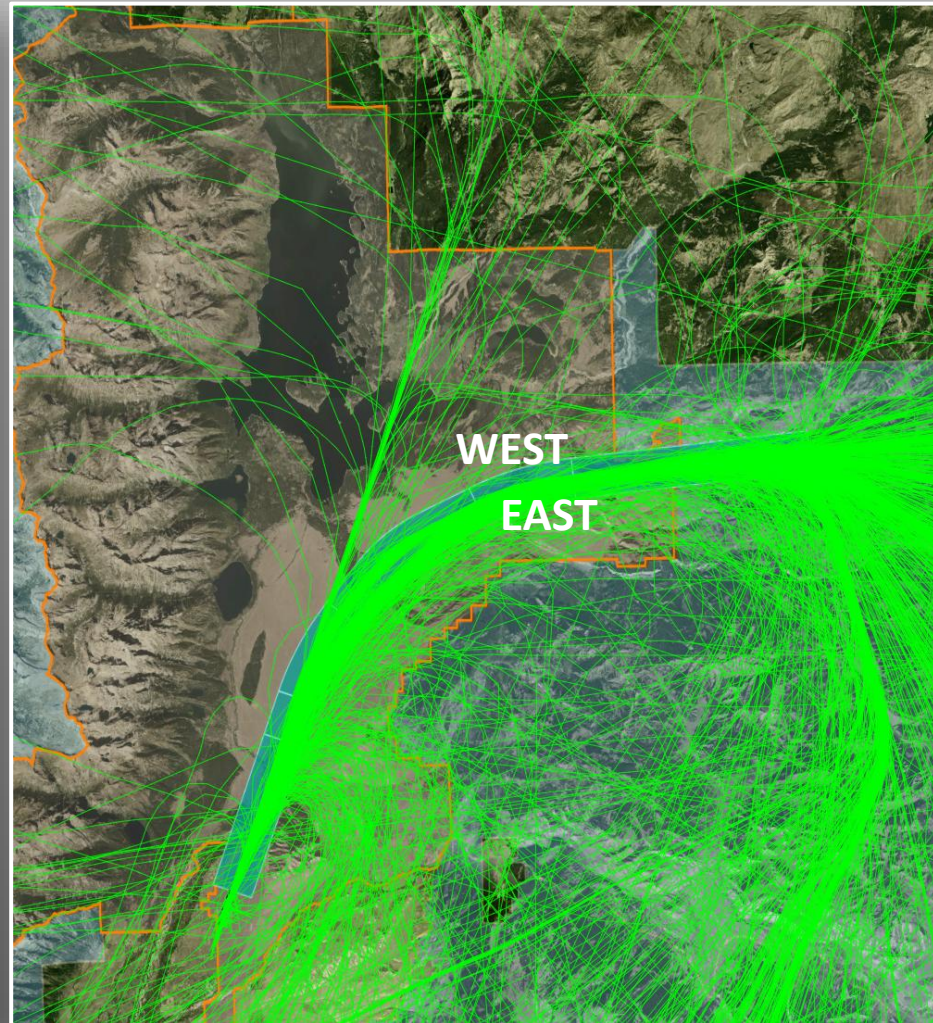
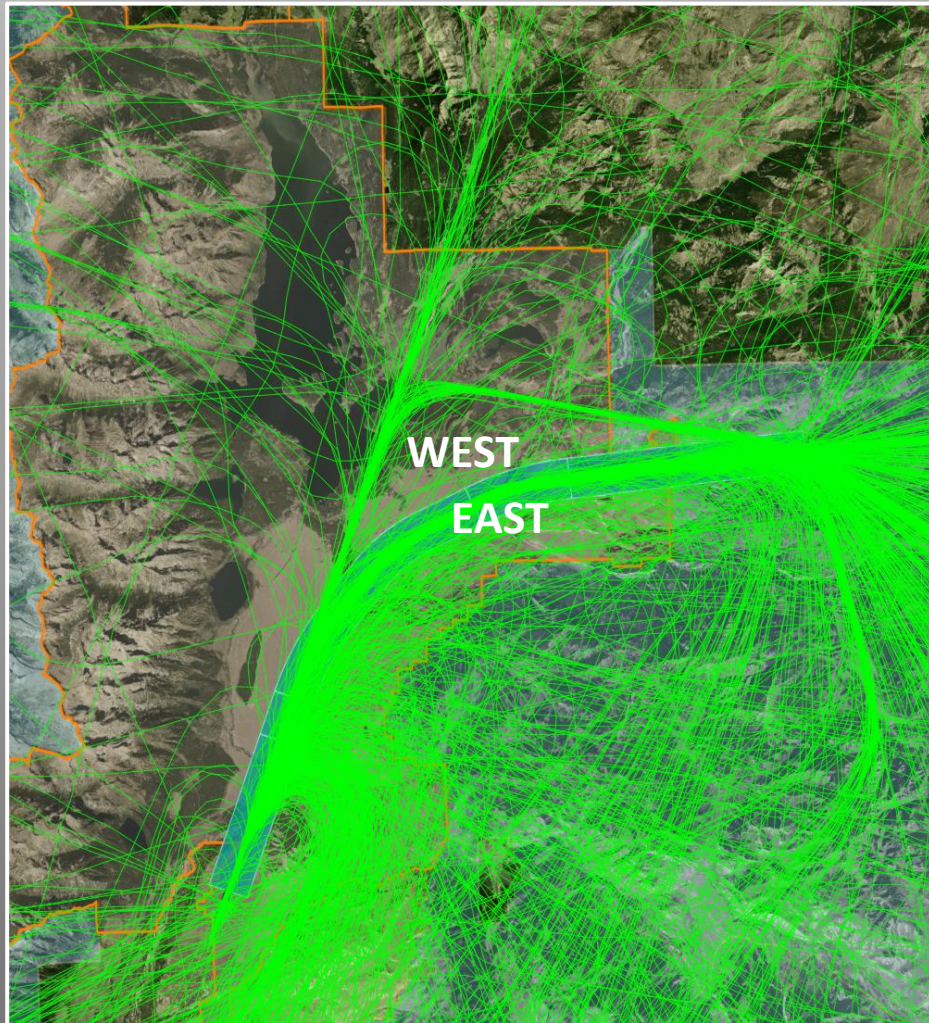
- ❖ NextGen Flight Path Compliance
- ❖ East of NextGen Flight Path



Jet Arrival Flight Tracks over GTNP (Fly Quiet Period 2015 vs. 2019)

FQ 2015

FQ 2019

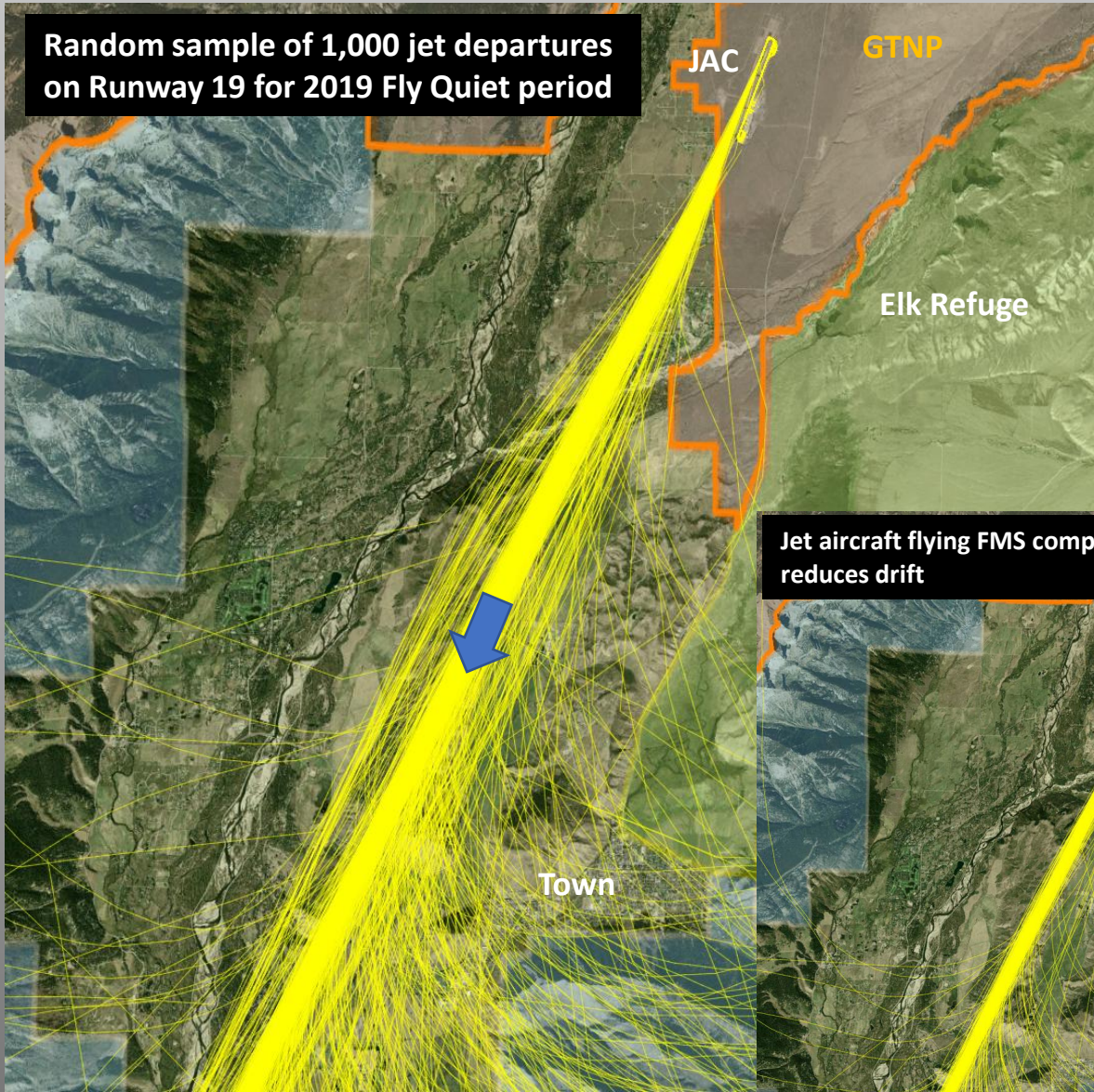


Random Sample of 1,100 jet arrivals on Runway 19 over each one year fly quiet period

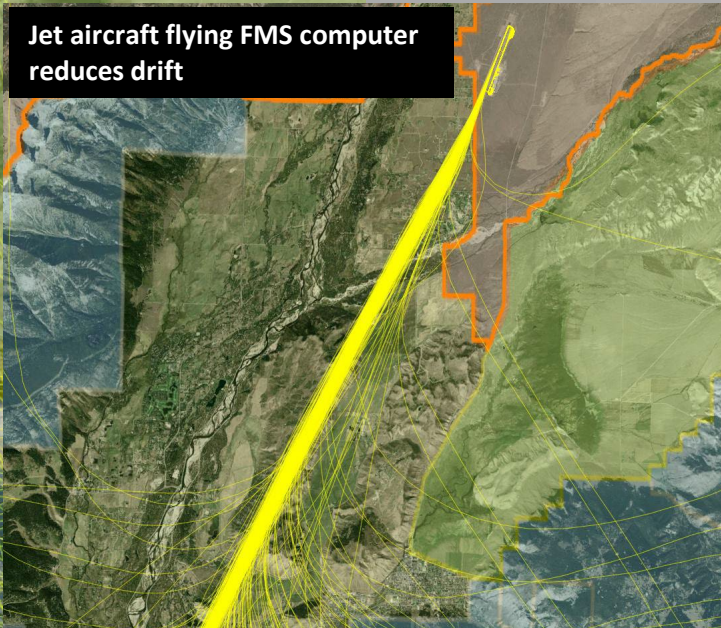


South Departure Flight Procedures

Random sample of 1,000 jet departures on Runway 19 for 2019 Fly Quiet period



Jet aircraft flying FMS computer reduces drift



- ❖ Use of aircraft flight management system (FMS) computer reduces westward drift on south departures



Airport Wide 2020

CAT	Fly Quiet Operator Category	All Procedures FQ Score	Fleet Quality FQ Score	Minimum High Events FQ Score	Voluntary Curfew FQ Score	TOTAL Fly Quiet FQ Score
A	Air Carrier	99%	70%	94%	95%	89%
B30	Business 135 30 ops per year	89%	80%	96%	88%	89%
B	Business 135 Other	86%	71%	93%	95%	86%
C30	Business Single 30 ops per year	89%	69%	92%	98%	87%
C	Business Single Other	84%	71%	91%	99%	87%



Commercial Jets – Fly Quiet Score 2020

Fly Quiet Elements

Overall Score

Airline	Airline Name	All Procedures FQ Score	Fleet Quality FQ Score	Minimum High Events FQ Score	Voluntary Curfew FQ Score	TOTAL Fly Quiet FQ Score	Fly Quiet Rating Expectation
SKW	Skywest Airlines	98%	79%	97%	100%	93%	FQ Top Tier
AAL	American Airlines	97%	70%	94%	100%	90%	FQ Top Tier
UAL	United Airlines	99%	62%	89%	100%	88%	FQ Compliant
DAL	Delta Air Lines	99%	69%	96%	64%	82%	FQ Compliant
Total							

Business Jets (Part 135) 30 Ops – Fly Quiet Score 2020

Fly Quiet Elements

Overall Score

Airline	Airline Name	All Procedures FQ Score	Fleet Quality FQ Score	Minimum High Events FQ Score	Voluntary Curfew FQ Score	TOTAL Fly Quiet FQ Score	Fly Quiet Rating Expectation
YEL	Summit Aviation	86%	100%	94%	100%	95%	FQ Top Tier
FFL	Foreflight	98%	79%	100%	100%	94%	FQ Top Tier
XOJ	XOJet	92%	84%	98%	100%	93%	FQ Top Tier
SDU	Dumont	100%	70%	100%	100%	93%	FQ Top Tier
SVL	Sun Devil Aviation	98%	70%	100%	100%	92%	FQ Top Tier
WWI	Worldwide Jet Charter	95%	78%	89%	100%	90%	FQ Top Tier
EJM	Exec Jet Management	91%	73%	97%	100%	90%	FQ Top Tier
DPJ	Delta Private Jets	84%	77%	95%	100%	89%	FQ Compliant
SIS	Saber Airlines	89%	73%	92%	100%	88%	FQ Compliant
EDG	Jet Edge	94%	70%	88%	100%	88%	FQ Compliant
FTH	Mountain Aviation	95%	96%	98%	62%	88%	FQ Compliant
PXT	Pacific Coast Jet	83%	73%	95%	100%	88%	FQ Compliant
JTL	Jetall	82%	70%	97%	100%	87%	FQ Compliant
GAJ	Gama Jet	67%	81%	100%	100%	87%	FQ Compliant
DCM	FltPlan	82%	72%	92%	100%	87%	FQ Compliant
RGY	Regency Airlines	94%	60%	91%	100%	86%	FQ Compliant
JCY	Aerius Management	86%	66%	92%	100%	86%	FQ Compliant
LXJ	Bombardier FlexJet	91%	84%	97%	64%	84%	FQ Compliant
SJE	Sunair 2001	79%	71%	85%	100%	84%	FQ Compliant
EJA	NetJets Airway	90%	82%	98%	64%	83%	FQ Compliant
COL	Columbia Airlines	93%	61%	77%	100%	83%	FQ Compliant
DLX	Dreamline Aviation	58%	72%	96%	100%	82%	FQ Compliant
TWY	Sunset Aviation	94%	71%	91%	61%	79%	FQ Compliant
TIV	Thrive Aviation	87%	70%	98%	57%	78%	FQ Compliant
TTE	Avcenter	69%	64%	87%	56%	69%	FQ Non-Compliant
PFT	Air Cargo Express Intl.	62%	80%	97%	31%	67%	FQ Non-Compliant
Total							



Business Jets (Single Operators) 30 Ops – Fly Quiet Score 2020

Fly Quiet Elements

Overall Score

Airline	Airline Name	All Procedures FQ Score	Fleet Quality FQ Score	Minimum High Events FQ Score	Voluntary Curfew FQ Score	TOTAL Fly Quiet FQ Score	Fly Quiet Rating Expectation
N502ET		100%	100%	100%	100%	100%	FQ Top Tier
N630WB		97%	80%	100%	100%	94%	FQ Top Tier
N924TC		100%	80%	97%	100%	94%	FQ Top Tier
N307SC		95%	80%	100%	100%	94%	FQ Top Tier
N14CJ		100%	70%	100%	100%	93%	FQ Top Tier
N279D		100%	70%	100%	100%	93%	FQ Top Tier
N894KS		97%	70%	100%	100%	92%	FQ Top Tier
N525PB		95%	70%	100%	100%	91%	FQ Top Tier
N94PC		94%	70%	100%	100%	91%	FQ Top Tier
N37VR		94%	70%	96%	100%	90%	FQ Top Tier
N980CC		90%	70%	100%	100%	90%	FQ Top Tier
N1440W		91%	70%	98%	100%	90%	FQ Top Tier
N197LL		77%	80%	100%	100%	89%	FQ Compliant
N302TB		98%	60%	97%	100%	89%	FQ Compliant
N100VP		94%	60%	100%	100%	89%	FQ Compliant
N585WT		88%	68%	97%	100%	88%	FQ Compliant
N319GG		84%	70%	97%	100%	88%	FQ Compliant
N307ST		99%	60%	89%	100%	87%	FQ Compliant
N122WY		77%	70%	100%	100%	87%	FQ Compliant
N393BV		87%	70%	88%	100%	86%	FQ Compliant
N371FP		93%	70%	71%	100%	83%	FQ Compliant
N424SK		95%	60%	79%	100%	83%	FQ Compliant
N775E		91%	60%	81%	100%	83%	FQ Compliant
N534NT		62%	70%	100%	100%	83%	FQ Compliant
N616CC		96%	70%	66%	100%	83%	FQ Compliant
N711KT		61%	70%	100%	100%	83%	FQ Compliant
N950SF		69%	60%	90%	100%	80%	FQ Compliant
N378TP		100%	60%	38%	100%	75%	FQ Compliant
N117AL		72%	70%	100%	47%	72%	FQ Compliant
Total							



- ❖ Fly Quiet shows a continued overall trend of improvement or steady levels of Fly Quiet noise measures
 - **Fleet Quality** shows trends in greater use of newer generation (quieter) aircraft and less of the older (louder) Stage 2 and Stage 3 aircraft.
 - Aircraft are continuing to follow the **flight procedure goals** with greater than 90% compliance and showing trends of increased compliance.
 - The percentage of **higher noise level events** per operation is steady or reducing over time.
 - The number of **voluntary curfew hours** jet operations is reducing.
 - *Note the number of jet operations are increasing (not accounted for in Fly Quiet) which can result in increased community annoyance; however, those aircraft are operating in a quieter manner.*



Definitions

- ❖ DNL – Day-Night Noise Level, an Average Cumulative Noise Level and specified in the Use Agreement
- ❖ Lmax – Maximum noise level from an aircraft flyover
- ❖ Stage 2,3,4,5 – Stage 2 are Older, Noisier Aircraft (Hushkit Stage 3)
Stage 3 Newer, Quieter Aircraft
Stage 4 & 5 Newest, Quietest Aircraft
- ❖ FNQ – Fleet Noise Quality, How Quiet an Aircraft Actually is Compared to the Stage Certification
- ❖ High Noise Event – As Measured at the Golf Course and Moose
Approx. highest 5 to 10% of All Operations
- ❖ CRF Part 150 – A FAA funded voluntary aircraft noise and land use compatibility study.