



Technical Working Group Meeting #1

Establishing a Baseline

September 11, 2019, 4pm

Technical Working Group Introduction

Housekeeping

Involvement:

The Technical Working Group will be the deliberating body. Questions will be taken from those attending as deemed appropriate and timely.

Member participation:

Use of name tents.

Website: https://www.asevision.com/twg/

- Other working groups will have their own sites.
- Ours and other working groups meeting dates will be posted so that others and public can attend if desired.
- Data related to each meeting will be placed under their particular headings.
- Support data (general) still remains on the web where it resides today.



Meeting Schedule

Meeting II Diving Deep Part I Meeting III Diving Deep Part II Meeting IV Airfield

Meeting V Report

Meeting 2 - Diving Deep Part 1: Forecasts, Fleet Mix, Design Aircraft Values Scorecard September 18, Airport Operations Center, 3 – 4pm (Live Burn Event), 4 – 7 pm (Meeting)

Meeting 3 - Diving Deep Part 2: Aircraft Noise and Emissions, Airplane Design Group October 2nd Aspen Meadows, Doerr-Hoiser, 4 – 7pm

Meeting 4 - Aspen Airfield: Airport Design 101, Non-Standard Conditions, Green and Carbon Neutral Goals October 16th, Pitkin County Building, Roaring Fork Room, 4 – 7

Meeting 5 – Report: Finalize and Refine Recommendations October 23rd, Aspen Police Department Building Meeting Room, 4 - 7 pm



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Technical Working Group

Meeting #1 – Agenda (4-7pm)

Mission - To meet our community values and goals what is our preferred "design aircraft"?

- I. Review of Vision Process Status and TWG Role Going Forward
- II. Review Reference Materials
- III. Airport Overview / Operational Metrics
- **IV.** Airport Issues External Factors
- V. Setting the Stage / Current Available Aircraft
- VI. Lighting Round and Discussion
 - Identify Shared Goals and Priorities
 - What do we need in order to address and recommend the following considerations: Design Aircraft, Implications of Status Quo vs. Airplane Design Group II v. III, Green and Carbon Neutral Airfield.





Reference Materials

Reference Materials

How do these reference material documents help us guide a discussion and recommendation?

- I. Airport Performance Metrics Technical Memo 2019
- II. Airport Master Plan 2012
- III. Airport Layout Plan 2016
- IV. EA 2015
- V. Airspace Impact and Aircraft Feasibility Assessment 2018



Technical Working Group Strategic Questions

To meet our community values and goals what is our preferred "design aircraft"?

- How could the existing or future "fleet mix" meet the air pollution reduction, limited enplanement growth, and noise abatement goals established by the ASE Vision process?
- In light of those community goals, what does the future airfield look like in terms of safety and airport design?
- What are the implications of the status quo <u>VS</u> Airplane Design Group II <u>VS</u> Airplane Design Group III? Could any variations exist within these design groups that might help us attain our community goals?
- How could our future airfield be as green and carbon neutral as possible?



Technical Working Group Deliverables



Process Timeline





AVC Guiding Principles

- Reduce overall airport emissions (aircraft & facilities) by 20-30% [Target for Overall Airport Emissions]
- Reduce noise levels by 20-30% [Target for Airport Noise Intensity]
- Accommodate limited growth [Airport Commercial Enplanement Target of . 8%]

ASE COMMUNITY VALUES SUMMARY

- Safety in the Air and on the Ground
- Adaptable, Flexible, Future-Proof
- Environmental Responsibility
- Community Character Reflect local culture and values
- Economic Vitality
- Warm and Welcoming
- Design Excellence
- Efficiency an airport that works well
- Preserve High Quality of Life
- Convenient and Easy Ground Transportation



Deliverables by November to Report Back to the Airport Vision Committee

I. Design Aircraft Values Scorecard

- Rank available aircraft to community values and goals
- II. Answers to Strategic Questions
 - Preferred Design Aircraft, ADG, Green and Carbon Neutral Airfield
 - Identify areas of conflict and areas of group alignment

III. Success Factors for TWG

- Community Character Lens
- IV. Other Recommendations | Considerations
 - Other factors, comments, captured dialogue





Airport Overview

Airport Metrics - Historical

- I. Enplanements
- II. Aircraft Operations
- III. TSA Baggage Screening
- IV. Fuel Revenue



Historical Enplanements - Annual 2008 - 2018



Source: Gulliver, B. (9/3/2019) ASE Airport Performance Evaluation, Technical Memorandum, Kimley-Horn



Historical Enplanements - Monthly Trends

Monthly Enplaned Passengers









Enplanements - Forecast Comparison





Aircraft Operations

Historical Aircraft Operations Aspen/Pitkin County Airport

	Co	mmercial operat	tions			Total	Percent	
	Air	Air taxi/		General		aircraft	increase	
Year	carrier	commuter	Total	aviation	Military	operations	(decrease)	
2000	7,632 7,199		14,831	33,748	239	48,818	96	
2001	6,988	9,008	15,996	29,930	121	46,047	(5.7)	
2002	6,902	10,034	16,936	29,377	128	46,441	0.9	
2003	6,580	10,034	16,614	26,241	124	42,979	(7.5)	
2004	5,224	12,446	17,670	26,228	93	43,991	2.4	
2005	5,223	12,522	17,745	26,383	125	44,253	0.6	
2006	5,410	13,904	19,314	25,330	94	44,738	1.1	
2007	6,380	12,786	19,166	19,284	57	38,507	(13.9)	
2008	7,849	12,750	20,599	15,718	59	36,376	(5.5)	
2009	8,359	10,247	18,606	21,053	127	39,786	9.4	
2010	9,698	7,945	17,643	19,842	118	37,603	(5.5)	
2011	9,682	8,664	18,346	19,171	98	37,615	0.0	
2012	9,485	8,797	18,282	18,493	125	36,900	(1.9)	
2013	8,307	9,428	17,735	17,507	86	35,328	(4.3)	
2014	8,716	8,926	17,642	17,604	149	35,395	0.2	
2015	8,986	9,674	18,660	20,297	237	39,194	10.7	
2016	9,310	10,248	19,558	21,448	334	41,340	5.5	
2017	9,626	10,865	20,491	21,667	268	42,426	2.6	
2018	11,590	9,514	21,104	19,867	267	41,238	(2.8)	
January-								
March								
2018	5,113	3,004	8,117	5,677	56	13,850	%	
2019 4,443		3,323	7,766	5,216	28	13,010	(6.1)	
		Compound	d average pe	rcent increase	e (decrease)			
2000-2010	2.4%	1.0%	1.8%	(5.2%)	(6.8%)	(2.6%)		
2010-2018	2.3	2.3	2.3	0.0	10.7	1.2		



— Total Aircraft Operations

Note: Includes arrivals and departures.

2.3

1.6

2000-2018

Source: Federal Aviation Administration, Air Traffic Activity System (ATADS), www.faa.gov, accessed April 2019.

2.0

(2.9)

0.6

(0.9)

Source: FAA, Air Traffic Activity System, www.faa.gov, accessed April 2019, prepared by Kimley-Horn



ASE Historical Aircraft Operations

TSA Bags Screened



Source: Gulliver, B. (9/3/2019) ASE Airport Performance Evaluation, Technical Memorandum, Kimley-Horn Note: *2019 data only includes baggage count from January-April 2019



Fuel Flowage Revenue



Source: Gulliver, B. (9/3/2019) *ASE Airport Performance Evaluation*, Technical Memorandum, Kimley-Horn Note: *2019 data only includes fuel sales from January-March 2019



Airport Issues External Factors

Airport Issues / External Factors

What external factors are important to know and consider?

- I. Aging Commercial Service Aircraft
- II. Design Standards
 - Runway/Taxiway Separation (320 vs.400 feet)
 - Pavement Strength Approx. 150,000
 Landing Weight
- III. NexGen
- IV. Electric Aircraft



Setting the Stage...for a deeper discussion on design aircraft

Available Aircraft

What aircraft are available to serve ASE?

		Model	Physical Class (Engine)	AAC	Seating	Wingspan (ft.)	MTOW	Noise			ICAO Emissions Per Passenger					ASE Operational Capability			Operations Data	
ADG	Menufecturer							EPNdB Noise Level Lateral/Full-Power	EPNdB Noise Level Approach	EPNdB Noise Level Ryover	NOx Takeoff	NOx Climbout	NOx Approach	NOx Idle	NOx Total (All Segments)	ASE Missed Approach Capable? Winter	ASE Missed Approach Cepeble? Summer	Significant Wt Penalty at ASE?	Annual Ops 2018	Annual Ops Future
	Bomberdier	CIU 100/200/440 LR (CL-600-2819)	Jet	С	50	68.67	53,000	82.4	92.2	77.7	0.23	0.20	0.14	80.0	0.65	Charter	N	Y	16,452	17,816
-	Bomberdier	CRU 700/701/702 LR	Jet	c	70	76.27	77,000	89.5	92.6	82.4	0.20	0.18	0.15	0.06	0.60	Y	¥	Y	11,751	12,728
	Bomberdier	CIU 550 (Same airframe as CIU-700)	Jet	C	50	76.27	65,000	89.5	92.6	82.4	0.29	0.25	0.22	0.09	0.84	Y	Y	N	16,452	17,816
	Mitsubishi	M100 Specialet	Jet	C	76	91.30	86,000	li li	Information not available					UNK	UNK	UNK	10,823	11,721		
	Bomberdier	Dash 8 Q400	Turboprop	с	76	98.25	65,200	84.94 93.96 77.75			Information not readily available					Y	Y	N	10,823	11,721
- 11	Embreer	EMB 175 LR, extended wingtips / E2	Jet	С	76	98.92	85,517	91.8	95.1	93	0.20	0.17	0.14	0.06	0.57	Y	Marginal	Y	10,823	11,721
	Embreer	EM8 175-E2	Jet	c	80	101.70	98,767	Information not available			Information not available					UNK	UNK	UNK	10,282	11,135
- 11	Embreer	EM8 190-E2	Jet	C	97	110.70	124,341	92.3	92.3	83.8	0.20	0.17	0.09	0.04	0.49	UNK	UNK	UNK	8,480	9,184
	Airbus	A220-300	Jet	С	140	115.08	149,000	87.5	92.4	80.3	0.24	0.19	0.10	0.06	0.58	UNK	UNK	UNK	5,876	6,363
	Airbus	A220-100	Jet	c	109	115.08	134,000	88	91.5	78.8	0.17	0.14	0.07	0.03	0.40	Y	¥	N	7,547	8,173
	Embreer	EM8 195-E2	Jet	C	120	115.15	135,584	92.3	92.7	84.9	0.16	0.13	0.07	0.03	0.39	UNK	UNK	UNK	6,855	7,423
	Boeing	737-700 with winglets	Jet	C	137	117.42	154,500	98.1	95.9	83.5	0.15	0.12	30.0	0.05	0.37	Y	Marginal	Y	6,528	7,070
- 11	Airbus	A320-200 Sharklet	Jet	C	157	117.45	171,961	90.9	98.6	84.1	0.16	0.13	0.07	0.04	0.40	UNK	UNK	UNK	5,484	5,939
	Airbus	A320neo Sharklet	Jet	C	157	117.45	174,165	86.4	92.4	80.5	0.16	0.13	30.0	0.05	0.37	UNK	UNK	UNK	5,876	6,363
	Airbus	A319-100 Sharklet	Jet	C	132	117.45	168,653	91.4	92.9	83.3	0.12	0.08	0.06	0.03	0.29	Y	Y	N	6,426	6,969

Notes:

Noise and Emissions Source - ICAO Certification Database, August 2019 | HMMH, August 2019; Per-passenger Interpretation - Kimley-Horn August 2019. Operations 2018 • Actual Explanaments at 70% load factor. Future = 2028 Explanaments at 0.0% Annual Growth and 70% load factor Altersfit Load en Dimensions from FAA Africant Design Characteristics Database OCT 2018 ASE Operational Capability from August 2018 Altersfit Facebolity analysis done by Alec Seybold - Flight Tech Engineering

Sources: FAA Aircraft Characteristics Database and ICAO Noise Certification Database, accessed August 2019 by Kimley-Horn and Associates



ICAO Aircraft Certification - Noise Reference Points





Combined Noise Data by Aircraft



Source: ICAO Noise Certification Data Base, August 2019



Combined Emissions Per Passenger



Source: ICAO Emissions EASA Data Base, August 2019





Community Values





Lighting Round and Discussion

Technical Working Group Discussion

- I. After the discussion today, let us know what you need in order to address and make a recommendations.
- II. How do our community values align with characteristics of design aircraft?
- III. How will the TWG define success when we consider an approach to the strategic questions.





Next Steps

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Thank You Are we missing anything?



Flyover Noise by Aircraft



Source: ICAO Noise Certification Data Base, August 2019



Approach Noise by Aircraft



Source: ICAO Noise Certification Data Base, August 2019



Lateral/Full-Power Noise by Aircraft



Source: ICAO Noise Certification Data Base, August 2019



NOx Emissions Per Passenger



Source: ICAO Emissions EASA Data Base, August 2019



CO Emissions Per Passenger



Source: ICAO Emissions EASA Data Base, August 2019



Hydro Carbon Emissions Per Passenger



Source: ICAO Emissions EASA Data Base, August 2019

