TRANSPORTATION RESEARCH BOARD

Lend a Helping Hand - Sharing Airport Data for Risk Management

August 9, 2021

@NASEMTRB #TRBWebinar

Learning Objectives

- Identify types of operations and safety data to collect and share for risk-based decisionmaking
- 2. Identify resources available to airports for operations and safety data collection

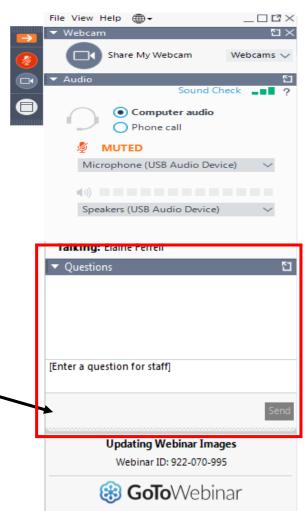
American Association of Airport Executives (AAAE)

1.0 Continuing Education Units (CEUs) are available to Accredited Airport Executives (A.A.E.)

Report your CEUs: www.aaae.org/ceu

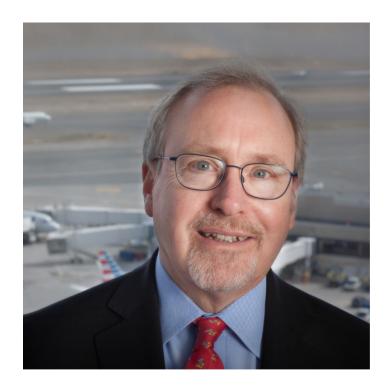
Questions and Answers

- Please type your questions into your webinar control panel
- We will read your questions out loud, and answer as many as time allows



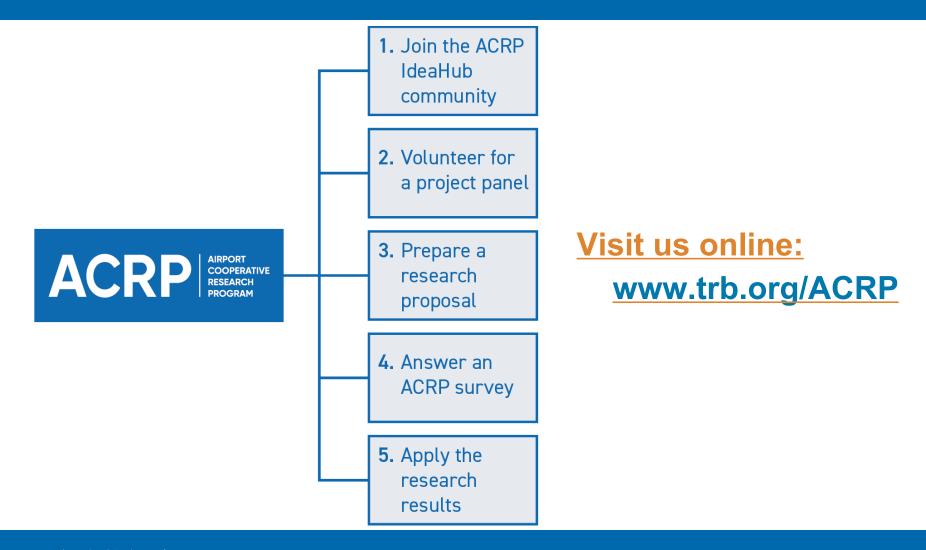
David Bannard Kaplan Kirsch & Rockwell LLP

- More than 25 years of experience in representing airports on regulatory compliance, airport financings, use and lease agreements and rate-setting ordinances, airline and other tenant bankruptcies, defense of Part 16 actions, and the negotiation of concessions agreements.
- → Experienced bond attorney, serving as bond counsel to airports and other issuers, counsel to borrowers and underwriters and disclosure counsel, as well as issuer's counsel, in many transactions.
- → Dave served as chair of the ACRP legal projects for several years.





Five Ways to Get Involved!





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Today's Speakers

Jennifer Salerno, Booz Allen Hamilton,

Dave Fleet, Faith Group, and

Ken Neubauer, Futron Aviation Corp.

Presenting

ACRP Report 222: Collecting and Sharing of Operations and Safety Data



ACRP Report 222

Collecting and Sharing of Operations and Safety Data

Jennifer Salerno, Booz Allen Hamilton Dave Fleet, Faith Group Ken Neubauer, Futron Aviation



Jennifer Salerno, CMAP Principal Investigator

- → 24 years of environmental experience, including over 10 years for aviation
- → Senior Lead Technical Specialist, Booz Allen Hamilton
- → Has been a Principal Investigator (PI) for multiple ACRP projects
- → Served two 3-year terms as Chair of AV030, Environmental Impacts of Aviation (1994-2020)
- → Change Management Advanced Practioner (CMAP)





Dave Fleet

- → 18 years in Airport Management
- → 15 years in Airport Consulting focused on Safety and Risk Management
- → Has been a Principal Investigator for several ACRP and PARAS projects
 - Served as a SME on several more
- → Facilitated and documented over 60 Safety Risk Management panels
- → Nationally Recognized Facilitator





Ken Neubauer

- → Technical Director for Aerospace Safety at Futron Aviation Corporation
- → 20 Years of Aviation Safety Focus
- → Safety Management Consultant to airports, automotive, and commercial aviation
- → Career Navy pilot; Director of Naval School of Aviation Safety; Director of Aviation Safety Programs, Naval Safety Center
- Multiple ACRP safety projects as Principal Investigator





ACRP Report 222 Oversight Panel

David Bannard, Kaplan Kirsch & Rockwell, Panel Chairman

Geoffrey David Clark, MicroStrategy Japan

Catherine Coslick, MITRE Corporation

Keith Ellis, United Airlines

Mark Richter, Ricondo and Associates

Elizabeth Smart, St. Louis Lambert International Airport

Phillip Davenport, FAA Liaison

Susan Gardner, FAA Liaison

Ashley Sng, ACI-NA Liaison

Christine Gerencher, TRB Liaison

Marci Greenberger, ACRP Senior Program Officer



Guidebook Overview

Airports collect operations & safety data daily

- → Real-time and historic data is helpful to analyze risks and hazards
- → ACRP Report 222 (Guidebook) identifies:
 - Data sources and data points for successful airport operations and safety data collection and sharing
 - Available and relevant information sources, challenges, and best practices in data collection and information sharing





Research Problem

Airports require access to data to:

- → Make informed, risk-based decisions
- → Address emerging risk to make smarter decisions to address or reduce risk
- → Monitor and understand trends
- **→** Benchmark against the industry
- → Identify and mitigate risks and hazards





Research Approach

Literature review and interviews

- **→** Extensive literature review (reports, studies, etc.)
- → Collected information on risk-based decision-making data collection and sharing
- → Interviewed airport operational and safety managers

Result

→ Recommendations and best practices for the collection, analysis, and sharing of operations and safety data to help address potential issues and enhance risk-based decision making



ACRP Report 222 (Guidebook)

Helps airports to better understand:

- → Types of data available and sources
- → Benchmarking methodology
- → Categories of risk faced in operations
- → Availability of information to assess and mitigate risks
- → Data collection and sharing challenges and issues

Serves as a resource providing:

- → Illustrative examples
- → How airports might adopt these practices to improve performance levels
- → How to collect and share standardized formats of data



Research revealed (Chapter 2)

- → There are a wide variety of stakeholders with DATA that could be useful if shared
 - FAA ATO
 - FAA ARP
 - FAA Tech Ops
 - Airlines
 - Cargo Carriers
 - FB0s
 - Ground Service Providers
 - MRO
 - Corporate Aviation
 - General Aviation

- TSA
- CBP
- Airport Depts
 - PD/ARFF
 - MX/Ops
 - Commercial Dev.
- Security Companies
- Landside Operators
- Terminal Concessions
- Convention and Visitors Bureaus
- Chambers of Commerce



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Data Sources (Chapter 3)





Data Sources

→ Internal (Airport Operator) – Inspections / Regulatory Compliance

Table 3-1. Internal data sources covered in this Guidebook.

Section #	Data Source
3.1.1	Part 139 Self-Inspection Reports
3.1.2	ARFF and Aircraft Fueling Equipment and Facility Inspection Reports
3.1.3	ARFF Runs (Non-Aircraft-Related) Reports
3.1.4	Airport Training Records
3.1.5	FOD Program Reports
3.1.6	Baggage Handling Area Inspection Reports
3.1.7	Ramp Inspection Reports
3.1.8	Terminal and Landside Inspection Reports
3.1.9	Safety and Incident Reporting

Data Sources / Uses

→ Internal Inspections – Example: Airfield Lighting

Table 3-2: Data Items from Airport Inspection Areas

Data Items	Description
Paved and Unpaved	Number of pavement discrepancies noted along with type and location of discrepancy.
Areas	Transcription of purchases decreased mental mental mental specific man recommender and accompanies,
Safety Areas	Number of safety area discrepancies noted along with type and location of discrepancy.
Markings and Signs	Number of marking and sign discrepancies noted along with type and location of discrepancy.
Lighting	Number of lighting discrepancies noted along with type and location of discrepancy and catalogue
	by area of the airport where the discrepancy occurs.
NAVAIDs	Number of NAVAID discrepancies noted along with type and location of discrepancy.
Wildlife	Wildlife activity noted along with changes to environment impacting wildlife activity (wetlands
	expansion, trash accumulation, changes outside the airport property, etc.).
Fueling	Number of fuel spills and number of fire code violations noted.
Obstructions	Number of obstructions along with type and location of obstruction.
Hazmat	Number of storage tanks and leaks along with type and location of discrepancy.
Snow and Ice	Number of lights and signs damaged, FOD left on pavement following snow removal activities,
	(equipment parts, ice chunks, etc.) along with number and type, time required to clear, means and
	methods used, and amount of snow/ice accumulation.
Public Protection	Number of security discrepancies noted along with type and location of discrepancy.
Aircraft Rescue and Fire	Number of fire hazard discrepancies noted along with type and location of discrepancy.
Fighting	
Construction	FOD collected/reported (type and amount) and number of violations by construction workers.
Wind Indicators	Number of wind indicators and type and condition of wind indicators.

Given that Part 139 airports collect and manage the results from self-inspections, there are significant similarities in data collected and how data is managed airport to airport. While there are no technical requirements for data management, some large airports have sophisticated software and others use spreadsheets to track data. Despite differences in the methods of documentation, airports can and should share Part 139 inspection data given the possible benefits. The following is a brief example using airfield lighting.

Part 139 airports inspect lighting nightly. If lights are out in the movement area, this is documented and fixed as soon as possible. If more than two lights are out in a row, the lights must be corrected immediately. This requirement is even more stringent in Instrument Flight Rules (IFR) conditions. To this end, if an airport begins to note light failures in one specific area of the airfield, either on one taxiway or perhaps one side of a runway edge, and the frequency of outages is increasing, the airport operator must assume and investigate this situation as more than just normal bulb failure.

Upon investigation, the airport operator discovers that the lighting systems are working normally. There are no excessive ground faults, the regulators are operating normally, and the power supply is smooth and efficient. The operator determines that this taxiway (example) was recently transitioned to a new light fixture with light emitting diode (LED) bulbs in order to save energy as part of a construction project. Upon review, the operator discovers that the LED lights used meet the specifications in the project. The airport operator meets with the engineers and contractors to determine the root cause of this issue. ...



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Example: Airfield Lighting

- → For this example to work effectively across several airports, airports would need the following information:
 - Type of light (taxiway, runway, threshold, other)
 - Location (as exact as practicable)
 - Lighting system (e.g., which regulator, homerun, circuit)
 - Light product, including part number



Table 3-3. Data sharing examples.

Part 139 Item	Sub-System (Location)	Issue	Issue Source	Frequency (per Month)	Time Between Discovery and Correction (Average)		Shared Data	Benefit
Lighting	Runway Edge	Burning too frequently	Part 139 nightly inspection results	6; approach end of Runway 5L	24 hours	•	Results of root cause analysis and possible fix (acquire new LED bulbs) are shared Share: circumstance and bulb manufacturer	Cost savings, ensures improved safety through more reliable airfield lighting
Pavement Markings	Runway Edge Markings	Cracking and peeling shortly after repainting	Part 139 daily inspection results	12 x 10-ft sections	1 week		Results of root cause analysis shows poor paint quality (acquire new paint and inform FAA of specification variations) Share: circumstance and paint manufacturer	Cost savings, improved safety through improved longevity of markings
Airfield Signage	Runway Hold Position Signage	Face panel fading within 1st year of deployment	Part 139 nightly inspection results	2 signs	1 to 2 days		Results of root cause analysis show poor quality signage panels; thus, fading prematurely Share: circumstance and signage panel manufacturer	Cost savings, improved safety through improved longevity of signage
Snow Removal Operation	Plow Blades Damaging In- Pavement Lights	Parts of polyurethane blades are breaking off in- pavement light lenses	Part 139 inspections post- snow removal events	5 lights	2 days (time for analysis, change to procedures)		Results of root cause analysis revealed poly blades angled at 45 degrees are more likely to damage light fixtures. Rotating blades on edge (90 degrees to pavement) rarely damages lenses Share: circumstance and blade manufacturer	Cost savings, improved lighting performance during snow removal; does not result in degrad- ation of snow removal
Wildlife Hazard Management Program (WHMP)	Migratory Birds	Large flocks of migratory birds are overflying the airport	Continuous monitoring of WHMP	3 times per day on average over 2-week period	As soon as possible	•	Root cause analysis shows geese flight patterns changed due to above average rainfall filling low- lying areas near the airport	Understanding hazards (flocks of large birds) enables a proactive approach to WHMP
Construction Activities	Haul Routes Crossing Active Movement Areas	Escorts are losing contact with all pieces of equipment going to/from work areas	Continuous monitoring of construction	18	1 week (time for analysis, change to procedures)	•	Airport policy allows two pieces of equipment to be escorted across movement areas. Second piece has been losing contact with escort and appears alone on the airfield. Root cause analysis determines that single pieces of equipment escorts are more appropriate.	Additional costs for escorts; however, improved safety as escort policy was changed to 100% control and single vehicles



Example: Data Sharing from ARFF Response Vehicle Inspections

ARFF response vehicles are produced by several different manufacturers around the world. The information regarding their reliability, strengths, and weaknesses can and should be used by airports to determine which vehicles best suit their operations (i.e., climate might play a factor) and where to invest their money. In order to provide this information from one airport to another, the results of ARFF response vehicle inspections could be made available to a national data base where ARFF personnel and equipment maintenance staff could access the information to help them make decisions.

The results of inspections and testing could identify issues with water pumps, engines, fit and finish of the vehicles, and normal operational capabilities. Information sharing among ARFF personnel could help them make decisions regarding their fleet going forward. Information sharing also results in more open communications between airport ARFF personnel.

For example, an ARFF inspection may result in identifying a water pump issue. ARFF units must be able to dispense their allotment of water or chemical in a specific amount of time. The pumps used to accomplish this are critical to the ability of the unit. If pumps begin to slow or fail, the unit is out of service until repaired. Information shared about the type of pump, issue encountered, and the correction required helps other airports with the acquisition of new equipment or a maintenance need for existing equipment



Example: ARFF Response Vehicle Inspection

- → For this example to work effectively across several airports, airports would need the following information:
 - Type and brand of vehicle
 - Model year of the unit
 - Specific issue identified (i.e., water pump not holding pressure, etc.)
 - Correction requirements (i.e., new pump, different pump, etc.)
 - Time of correction
 - Date the issue is detected or recorded and date of correction



Data Sources / Uses - More Examples

- → Non-airfield ARFF Runs
- → Training
- → FOD Programs
- → Baggage Handling
- **→** Ramp Inspections
- → GSE

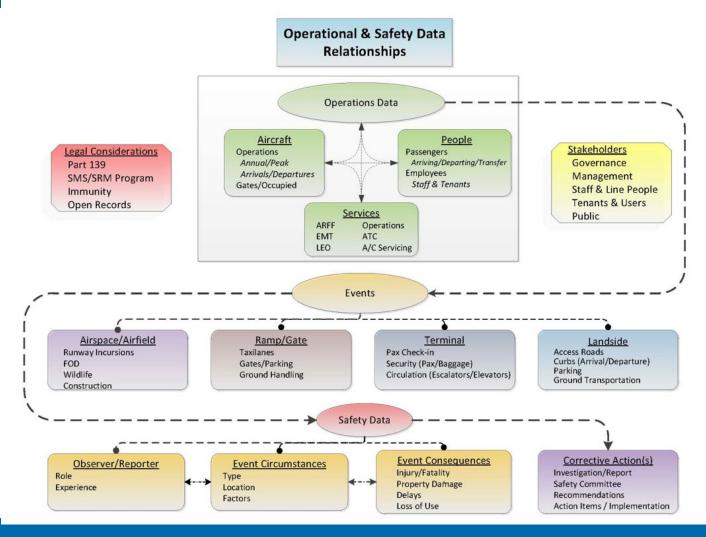
- → Property Damage
- → Safety Reports/Hazards
- → Terminal and Landside Ops
- → Parking
- → Shuttles/taxi/shared ride
- → Terminal Equipment and Function
- > Incidents and Accidents



Table 3-15. National data sources.

Section #	Data Source
3.2.1	Airport Data (FAA Form 5010)
3.2.2	Operations Network (OPSNET)
3.2.3	Passenger Enplanements and Cargo (BTS T-100)
3.2.4	Airport Financial Data (via CATS)
3.2.5	Airport Weather
3.2.6	Aviation Safety Reporting System (ASRS)
3.2.7	NTSB Accident Reports
3.2.8	FAA Aviation Incident Data System (AIDS)







A View Into Safety Data

 Ops data on daily activity **Operational & Safety Data** Ops data paints a picture of Relationships airport events **Operations Data** Some events are safety incidents Aircraft People Stakeholders Legal Considerations Operations Passengers Arriving/Departing/Transfer Governance Annual/Peak Part 139 **Employees** Arrivals/Departures Management SMS/SRM Program Staff & Tenants Gates/Occupied Staff & Line People **Immunity** Tenants & Users Open Records Services Public ARFF Operations **EMT** ATC LEO A/C Servicing **Events** Looking for Airspace/Airfield Ramp/Gate **Terminal** Landside those links Access Roads Runway Incursions Taxilanes Pax Check-in Curbs (Arrival/Departure) FOD Gates/Parking Security (Pax/Baggage) between Wildlife **Ground Handling** Circulation (Escalators/Elevators) **Ground Transportation** Construction Ops data Safety Data and Safety data **Event Consequences** Corrective Action(s) Observer/Reporter **Event Circumstances** Injury/Fatality Investigation/Report Property Damage Safety Committee Experience Location Delays Recommendations Factors

Loss of Use



Action Items / Implementation

Data Collection and Analysis

Collection and Analysis

- → Apply a systematic and consistent approach
 - Leads to discovery of lessons learned and trends
 - Trends and lessons learned can be shared
 - Internally with stakeholders
 - Externally with airports and industry organizations
- → Two levels of analysis prior to sharing (minimum)
 - Initial level to determine system performance (internal)
 - Root cause analysis to lead to corrections/mitigations (sharable externally)



Safety Data Collection Sources

Safety Specific Sources

- → Inspection reports (Part 139, safety audits, OSHA)
- → Investigation reports (inspection results, accidents, incursions)
- → Safety incident reports
- → Safety hazard reports

Safety Related Sources

- → Training records
- → FOD reports
- **→** Financial reports
- → Other organizations on the airport (collection and sharing)

The real value of safety record data rests in the rigor an airport operator puts into the investigation of the reason a report was submitted. ~ Section 3.1.9.1



Analyzing Data with a Safety Eye

Table 3-	Table 3-3. Data Sharing Examples									
Part 139 Item	Sub- System (Location)	Issue	Issue Source	Frequency (per Month)	Time Between Discovery and Correction (Average)	Shared Data	Benefit			
Lighting	Runway Edge	Burning too frequently	Part 139 nightly inspection results	6; approach end of Runway 5L		Results of root cause analysis shared results and fix (acquire new LED bulbs) Share: circumstance and nufacturer	Cost savings, ensures improved safety through more reliable airfield lighting			
Pavement Markings	Runway Edge Markings	Cracking and peeling – shortly after repainting	Part 139 daily inspection results	12 x 1 foot section	efine "Im Safet	chave noor paint	Cost savings, improved safety through improved longevity of markings			
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Analyzing Data with a Safety Eye

Financial Data - A Link to Safety

Operating and Financial Summary Airport: MELBOURNE INTL Airport3 Digit ID Code: MLB For Fiscal Year Ending: 09/00/2018 As of 02/22/22/200 03/20/44 PD Date Filed or Revised: 12-31-2019							
1.0 Passenger Airline Aeronautical Revenue	2018		Change	8.0 Non-Operating Revenue (Expenses) and Capital	2018		
1.1 Passenger airline landing fees	\$386,348	\$324,760	-15.94%	8.1 Interest Income - restricted and non- restricted.	\$111,491	\$171,265	53.611
1.2 Terminal arrival fees, rents, and utilities 1.3 Terminal area apron charges/tiedowns	\$967,799	\$849,195	-12.26%	8.2 Interest expense (use minus sign)	5-29.839	\$-45,001	50.81
1.4 Federal Inspection Fees	50	50	0%	8.3 Grant receipts	\$26,542,229		
1.5 Other passenger aeronautical fees	50	50	0%	8.4 Passenger Facility Charges	\$795,188		14.28
1.6 Total	\$1,354,147	\$1,173,955	-13.31%	8.5 Capital Contributions (for withdraw use minus sign)	\$0	\$13,014,803	0
2.0 Non-Passenger Aeronautical Revenu	_			8.6 Special items (loss)	50	\$-2,413,583	
2.1 Landing fees from cargo	50	50	0%	8.7 Other	\$1,404,444	\$4,000	9.72
2.2 Landing fees from GA and military	\$36,000	536,412	1,14%	(Gain on Sale of Property: \$1,320,126)			
2.3 FBO revenue; contract or sponsor-operated	\$540,513	\$535,134	-1.00%	(Hurrisane Reimb-FEMA: \$78,973)			
.4 Cargo and hangar rentals	\$3,543,588	\$3,245,267	-8.42%	8.8 Total Non Operating Revenue	\$28.823.513	\$11,716,064	-59.359
1.5 Aviation fuel tax retained for airport use 1.6 Fuel sales net profit/loss or fuel flowage fees	\$0 \$224.454	\$0 \$195,144	-13.08%	(Expenses)	0,020,010	,,	
2.6 Fuel sales net profit/loss or fuel flowage fees 2.7 Security reimbursement from Federal	\$224,454 \$85,682		-13.08%	I			
Sovemment				9.0 Net Assets			
2.8 Other non-passenger aeronautical revenue	\$2,572,720	\$2,845,847	2.84%	9.1 Change in net assets 9.2 Net assets (deficit) at beginning of year	\$20,902,384 \$156,385,041		-75.261 -3.315
2.9 Total	\$7,002,957	\$6,657,804	-4.93%	9.2 Net assets (deficit) at beginning of year 9.3 Net assets (deficit) at end of year	\$100,385,041	\$158,385,041	-3.315
3.0 Total Aeronautical Revenue	\$8,357,104	\$7,831,759	-6.29%				
				10.0 Capital Expenditures and Cons	\$23,75,620	ogress 50 043 143	380353514.331
4.0 Non-Aeronautical Revenue	\$5,087,218	\$5,880,880	-1.78%	10.2 Terminal	533,429		
1.1 Land and non-terminal facility leases and	\$5,987,218	\$5,880,860	-1.78%	10.3 Parking	\$24,100	\$0	-100.005
1.2 Terminal-food and beverage	\$114,282	\$509,730	346.03%	10.4 Roadways, rail, and transit	\$97,351	\$1,458,538	
1.3 Terminal-retail stores and duty free	\$0	\$0	0%	10.5 Other	\$205,830	\$972,741	372.591
4.4 Terminal-services and other	\$0	\$0	0%	(Land: \$205,830) 10.6 Total	ean cac aan	*** *** ***	-43.729
I.5 Rental cars-excludes customer facility thanges	\$1,097,164	\$1,027,780	-6.32%		\$29,636,330	\$16,678,353	-43.729
I.6 Parking and ground transportation	\$1,820,326	\$1,709,113	-6.11%	11.0 Indebtedness at End of Year			
1.7 Hotel 1.8 Other	\$0 \$445.517	\$0	0%	11.1 Long Term Bonds (GA ARB, PFC, etc.)	\$0	50	01
(Land/Non Terminal Facility Rent: \$385,493)	\$445,517	\$419,022	-5.95%	11.2 Loans and interim hancing	50	50	01
(Misc: \$80,024)				11.3 Special facility bands	50	\$0	
4.9 Total	\$9,464,507	\$9,546,505	0.87%	11.4 Total Debt at End of Year	\$0	\$0	09
5.0 Total Operating Revenue	\$17,821,611	\$17,378,264	-2.49%	12.0 Externally Restricted Assets			
				12.1 Externally Restricted Debt Reserves	\$0	\$0	
6.0 Operating Expenses				12.2 Other Externally Restricted Assets 12.3 otal	\$2,125,000	50 50	
5.1 Personnel compensation and benefits 5.2 Communications and utilities	\$4,577,843 \$945,316	\$4,932,795 \$998.014	7.75% 5.57%	12. Total	\$2,125,000	30	-100.009
3.3 Supplies and materials	\$45,316	\$998,014		3.0 Unrestricted Cash and	\$10,662,036	- 20	-100.009
3.4 Contractual services	\$8,579,240	\$6,778,253	-20.99%	Investments		-	-100.007
3.5 Insurance claims and settlements	\$198,014	\$44,751	-77.40%				
3.6 Other	\$156,176	\$0	-100.00%	14.0 Reporting Year Proceeds			
(Employee Moving Exp: \$24,903)				14.1 Bond proceeds	\$0	\$0	
(Travel/Training: \$79,408) (Training/Education: \$51,462)				14.2 Proceeds from sale of property	\$2,705,400	\$0	-100.005
(Bad Debt Expense: \$403)				15.0 Debt Service			
5.7 Subtotal		\$17,996,494		15.1 Debt service, excluding coverage	50	50	
5.9 Total Operating Expenses		\$23,923,127		15.2 Debt service, net of PFCs and Offsets	\$0	\$0	01
.0 Operating Income (Loss)	6 7 924 449	\$-6,544,863	47 27%	16.0 Operating Statistics (* optional		aving fewer t	han 25,000
.o operating income (coss)	3-1,321,143	\$-0,044,003	-17.3776	enplanements in the preceding cale	229 337	234 430	2 221
				Section 16.2 Landed weights in pounds	319,858,727	287,981,379	
					bs		
				Section 16.3 Signatory landing fee rate per 000 lbs	\$1.20	\$1.21	\$0.8
				Section 16.4 Annual aircraft operations	105.001	\$95,451	-9.105
				ection 16.5 Passenger Airline CPE (line	\$5.90	\$5.01	
				.6/16.1)			
				Section 16.6 Full time equivalent	62	49	-219
				mployees at end of year ection 16.7 Security and law enforcement	\$1.798.358	\$1,755,735	2.379
				ection 16.7 Security and law enforcement	91,790,358	91,700,735	-237
				ection 16.8 ARFF costs	\$1,136,601		
				Section 16.9 Repairs and maintenance	\$1,020,220	\$977,583	-2.101
				Section 16.10	\$1,495,202		

6.0 Operating Expenses			
6.1 Personnel compensation and benefits	\$4,577,843	\$4,932,795	7.75%
6.2 Communications and utilities	\$945,316	\$998,014	5.57%
6.3 Supplies and materials	\$4,360,714	\$5,242,681	20.23%
6.4 Contractual services 6.5 Insurance claims and settlements	\$8,579,240	\$6,778,253	-20.99%
6.5 Insurance claims and settlements	\$198,014	\$44,751	-77.40%
6.6 Other (Employee Moving Exp: \$24,903) (Travel/Training: \$79,408) (Training/Education: \$51,462)	\$156,176	\$0	-100.00%
(Employee Moving Exp: \$24,903)			
(Travel/Training: \$79,408)			
(Training/Education: \$51,462)			
(Bad Dobt Ever			

Section 16.9 Repairs and maintenance

Marketing/Advertising/Promotions

Section 16.10

6.7 Subtotal
6.8 Depreciation
6.9 Total Oper
6.9 To

Section 16.1 Enplanements	229,337	234,430	2.22%
*Section 16.2 Landed weights in pounds	319,858,727	287,981,379	-9.97%
	lbs		
*Section 16.3 Signatory landing fee rate per	\$1.20	\$1.21	\$0.83
1,000 lbs			
*Section 16.4 Annual aircraft operations	105,001	\$95,451	-9.10%
Section 16.5 Passenger Airline CPE (line	\$5.90	\$5.01	-15.19%
1.6/16.1)			
*Section 16.6 Full time equivalent	62	49	-21%
employees at end of year			
Section 16.7 Security and law enforcement	\$1,798,358	\$1,755,735	-2.37%
costs			
Section 16.8 ARFF costs	\$1,136,601	\$1,148,466	1.04%

\$1,020,220

\$1,495,202

Figure 3-8. Airport financial data using CATS (example).

\$977,583

\$278,847

-4.18%

-81.35%

Data for Assessing Risk

Table 3-14. Data sharing example.





V	Incident Type	Location	Date/Time	Frequency	Root Causes	Cost of Claim	Mitigation	Status
	Passenger Injury	Terminal A escalator	July 25/1930	4 to date	Slippery surface due to rainImproper use with large luggage	\$7,000.00	TBD	Open

Additional data captured to assess risk

- → Hazards impacting the incident
- → Frequency of similar incidents (running total per month)
- → Root causes of the hazards (recorded post-investigation)
- → Costs of repairs, medical treatment



Safety Data Sharing

When an airport shares and compares safety statistics with airports of similar size and complexity, operational deficiencies and hazards may be discovered through the process of asking why there are differences in the data. No airport is the same, and small airports in particular may not have the operational exposure to reveal existing hazards having yet to result in a bad outcome. Thus, comparing data with other like airports, and then analyzing the reasons for the differences may provide a proactive means to correct deficiencies before they result in an accident.

~ Section 3.1.9.3



National Data Sources = Sharing

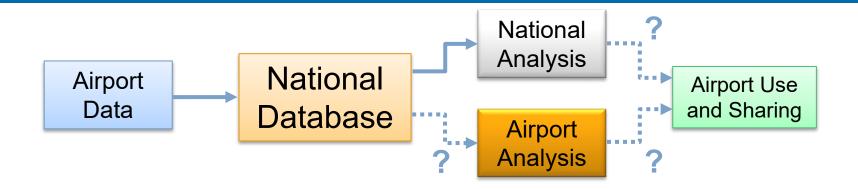


Table 3-15. National Data Sources.

Section #	Data Source
3.2.1	Airport data (FAA Form 5010)
3.2.2	Airport operations (OPSNET)
3.2.3	Passenger enplanements and cargo (BTS T-100)
3.2.4	Airport financial data (CATS)
3.2.5	Airport weather
3.2.6	Aviation Safety Reporting System (ASRS)
3.2.7	NTSB Accident Reports
3.2.8	FAA Aviation Incident Data System (AIDS)

Safety Data Sharing

Aviation Safety Reporting System (ASRS)

Table 3-25. ASRS data.

Data	Description				
Date and Report Number	1 eriod of Research (of report humoer if known)				
Place	Location (LOCID) and/or State				
Lavironment					
Lighting	Dawn/Daylight/Night, etc.				
Weather	Conditions (Rain/Snow/Fog, etc.)				
Person					
Reporter Organization	Air Carrier/FBO/Personal, etc. (Note: Airport not a choice)				
Reporter Function	ATC/Flight Crew/Ground Personnel, etc.				
Aircraft					
Operation (FAR)	Regulatory Authority (FAR Part 91/121/135 etc.)				
Flight Phase	Takeoff/Landing/Taxiing/Parked, etc.)				
Flight Plan	VFR/IFR, etc.				
In-Flight	Characteristics of observed clouds				
Make/Model	Aircraft Type (B737-800/Challenger 650, etc.)				
Mission	Passenger/Cargo/Training, etc.				
Event Assessment	Classification and Description				
Event Type	Anomaly (Ground incursion/excursion, etc.) Also, Critical vs Less Severe				
Dettetor	reacontacton vs retoon (utso rere, reve equipment, etc.)				
Primary Problem	Procedure, staffing, airport, etc.				
Contributing Factors	Company policy, human factors, environment (non-weather), etc.				
Human Factors	Distraction, fatigue, situational awareness, etc.				
Result	ATC/Flight crew (also Issued Advisory/Provided Assistance, etc.)				
Text (Narrative/Synopsis)	Keywords with Boolean functions ("AND", "OR") and Wildcards ("%")				



Data Sharing Challenges

Safety Data Sharing Challenges

- → Lack of a requirement (SMS)
- → Lack of an airport venue or platform
- → No common taxonomy
- → Sunshine Laws

Starting Point – Common Taxonomy

- → Chapter 4 in the Guidebook
- → Uses ASRS as a model

Table 4-3. Human factors related to event.

Field Name	Code	Format	Remarks						
Human Factors (HF)			Multiple Entries allowed						
Confusion	HFC	Checkbox (Y/N)							
Distraction	HFD	Checkbox (Y/N)							
Fatigue	HFF	Checkbox (Y/N)							
Physiological Conditions	HFP	Checkbox (Y/N)							
Situational Awareness	HFS	Checkbox (Y/N)							
Time Pressure / Workload	HFT	Checkbox (Y/N)							
Training/Quals	HFQ	Checkbox (Y/N)							
Equipment Failure	HFE	Checkbox (Y/N)							
Other	HFX	Alpha							
Communications Fa	ailure Betv	ween (CO)							
Party 1 & ATC	CO1	Checkbox (Y/N)							
Party 2 & ATC	CO2	Checkbox (Y/N)							
Party 1 & Party 2	CO3	Checkbox (Y/N)							
Other	cox	Alpha							



Path Forward (Chapter 5)

Individually or Collectively

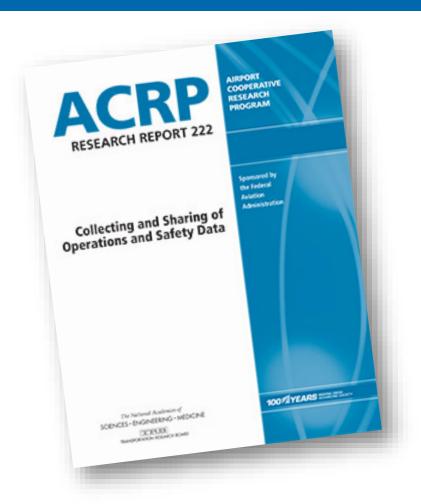
- → Individual airports
 - Require resources perhaps as simple as a spreadsheet
 - Analyze and investigate for actionable knowledge
- → Groups of airports
 - Like size, complexity, Ops tempo, location
 - Dashboards, mobile devices
 - Sharing methods may be impacted by Sunshine Laws

Integrate into Existing Processes

- → ASRS, ASIAS
- → May provide path to privilege with third party partner



FOR ADDITIONAL INFORMATION



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Today's Panelists



Moderated by: David Bannard, Kaplan Kirsch & Rockwell LLP



Dave Fleet, Faith Group



Jennifer Salerno, Booz Allen Hamilton

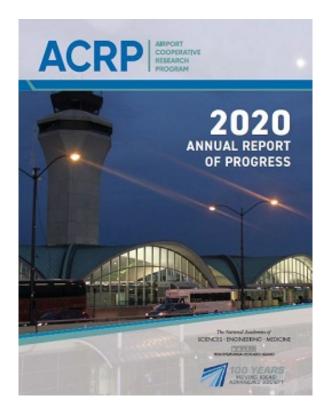




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GIS

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