APPENDIX C

BENCHMARKING METRICS

1.1 INTRODUCTION

Aviation Management Consulting Group (AMCG) was retained to identify and develop a benchmarking tool utilizing airport Performance Measures (PM) and Key Performance Indicators (KPI) common to the aviation industry. The resulting metrics can be used to further the Airport's strategic business plan and introduce or modify goals resulting in a more effective and efficient Airport.

RS&H and AMCG, in conjunction with the Centennial Airport Management Team, identified the following comparable airports.

Fort Lauderdale Executive Airport (FXE)

Fort Lauderdale Executive Airport is located in Fort Lauderdale, Florida approximately 6 miles northwest of downtown Fort Lauderdale. FXE is the premier airport in the region for executive traffic, including business and personal travel. Air traffic control, ARFF, and airport security services are provided continuously 24 hours a day. U.S. Customs services is also available 7 days per week. The airport has one instrument landing system and one RNAV approach available for the two runways. The airport includes more than 1.2 million square feet of corporate hangars.

Oakland County International Airport (PTK)

Oakland County International Airport is located in Waterford, Michigan approximately 30 miles northwest of downtown Detroit. The airport is frequented by many Fortune 500 companies for corporate travel. PTK serves large jets as well as corporate travel and is part of a general aviation airport system that includes two smaller airports serving smaller GA flights, freight, and aircraft maintenance facilities. The air traffic control tower is managed 18 hours a day and U.S. Customs service is available during weekly set times or on an "on call" basis. The airport has one instrument landing system as well as two RNAV approaches available to the three runways.

Scottsdale Airport (SDL)

Scottsdale Airport is located in Scottsdale, Arizona approximately 15 miles northeast of downtown Phoenix. SDL is the preferred airport in the region for vacationers and business travelers on private, corporate, and chartered aircraft. A business park has been developed around the Airport, including headquarters for over 25 national or regional corporations, and more than 2,500 businesses. U.S. Customs service is available 7 days per week with appointments available outside of operational hours. An air traffic control tower is in operation from 6 a.m. until 9 p.m. daily, and the one available runway has an RNAV approach to both runway ends.

Van Nuys Airport (VNY)

Van Nuys Airport is located in Los Angeles, California approximately 18 miles northwest of downtown Los Angeles. VNY, located in proximity to the many of the business, recreation and entertainment centers in the region, attracts many business and tourism travelers. Many regional aviation services are also based at the Airport including fire, police, air ambulance, search and rescue, and news media aircraft. U.S. Customs service is available weekdays during established times. The air traffic control tower operates from 6 a.m. to 10:45 p.m., and of the two parallel runways, one runway end has an instrument landing system approach.

Teterboro Airport (TEB)

Teterboro Airport is located in Teterboro, New Jersey approximately 10 miles northwest of Manhattan, New York. The focus of TEB is to reduce congestion on the commercial airports within the New York City system, and the Airport attracts many corporate traffic users due to its proximity. More than 572,000 square feet of hangar space and 386,000 square feet of office space available. U.S. Customs service is available during set times; however, special accommodations are considered upon request. An air traffic control tower is open 24 hours a day, and two instrument landing system approaches are available for each of the two runways.

Westchester County Airport (HPN)

Westchester County Airport is located in Westchester County, New York approximately 29 miles northeast of Manhattan, New York. HPN is designed as a primary commercial service airport and a number of airlines, including American, Cape, Delta, JetBlue, and United provide service. However, the uses of the airport include a wide variety of commercial, business and private aviation services. Customs service is available 7 days per week with 24-hour advanced notice. The air traffic control tower is open 17 hours a day from 6 a.m. to 11 p.m., and the two intersecting runways have two runway ends with an instrument landing system.

Dekalb-Peachtree Airport (PDK)

Dekalb-Peachtree Airport is located in Chamblee, Georgia, approximately 10 miles northwest of downtown Atlanta. A variety of general aviation types can be found at PDK including corporate jet, aircraft charters, flight training, maintenance, and recreational flying. Corporations including Southern Company, Cousins Properties and Rollins base their flight departments at the Airport. Customs services are available with minimum 2-hour advanced notice. The air traffic control tower is available 16 hours a day and one instrument landing system approach as well as two RNAV approach are available.

Morristown Municipal Airport (MMU)

Morristown Municipal Airport is located in Morristown, New Jersey, approximately 23 miles west of Manhattan, New York. MMU provides a variety of jet charters and flight training services. Several large pharmaceutical, technology, and communications corporations in the area have aircraft hangared at the Airport. Customs services are available Monday through Friday during normal operating hours, and outside business hours for additional fees. The air traffic control tower is open 6:45 a.m. to 10:30 p.m., and one runway end of the two intersecting runways has an instrument landing system.

Dear Valley Airport (DVT)

Dear Valley Airport is located in Phoenix, Arizona, approximately 17 miles north of downtown Phoenix. DVT attracts many of the general aviation operations in the region including a large number of flight training operations, ranking the Airport among the busiest GA airports in the nation. Between the Airport and the adjacent Northwest Industrial Airpark, DVT includes 965 workers directly employed. The air traffic control tower at the airport is open between 6:00 a.m. and midnight. The Airport has two parallel runways and two runway ends with RNAV (GPS) approaches.

1.2 BENCHMARKING METRICS

The following Performance Measures (PM) and Key Performance Indicators (KPI) were identified by the Centennial Airport management team as metrics essential to better understand the sustainable practices of top-tier general aviation airports. The value in identifying such markers is the establishment of benchmarks, which are used to evaluate performance and consider new strategies against comparable airports and industry aviation trends.

1. **Total Operating Revenues**

Annual income usually divided into two components, aeronautical and non-aeronautical. Depending on the airport, aeronautical revenues comprise the majority of airport income and include landing fees, land lease rents, fuel flowage fees, etc.

2. **Operating Revenues Per Aircraft Operation**

Total operating revenue divided by the annual total number of aircraft operations. An aircraft operation is defined as either a take-off or landing.

3. **Lease Revenues Per Based Aircraft**

Total lease revenue divided by the number of based aircraft. Based aircraft are those that are 'operational and airworthy', based at an airport for a majority of the year (greater than six months each year).

4. **Total Staff**

Both full-time and part-time equivalents, which is the total number of staffs employed by the airport. This does not include internships or contract employees

5. **Operating Revenues Per Airport Staff**

Total operating revenues divided by total number of airport staff.

6. **Operation and Maintenance (O&M) Expenses**

Total cost of airport operations and maintenance. O&M is identified in the operational section of the Airport's budget.

7. **Operation and Maintenance Expenses Per Aircraft Operation**

Total number of aircraft operations divided by the total cost of airport operations and maintenance.

8. **Labor Expense Per Employee**

Total cost of employee wages, benefits, etc. divided by the number of airport employees (those employed directly with each airport).

9. **Annual Aircraft Operations**

Annual total aircraft operations for each airport as identified in the FAA's Air Traffic Activity Data System (ATADS).

10. Annual Itinerant Aircraft Operations

Annual total itinerant aircraft operations for each airport as identified in the FAA's ATADS.

11. Number of Fixed Base Operators (FBOs)

Total number of FBOs operating at each airport.

12. Aircraft Weight Limitations (yes or no)

Airport airfield is restricted or unrestricted to certain operations based on weight limitations (e.g. 75,000 lbs) for the type of airport and runway load bearing capacity.

13. Based Jet Aircraft/Total Based Aircraft

Total number of based jet aircraft listed in the FAA's Airport Master Record (5010).

14. Fuel Flowage Fee (Jet-A and 100LL)

Per gallon fee collected for each fuel type. Fuel flowage fees are collected on all aviation fuel including self-serve fuel operators (those that pump their own fuel into their own aircraft).

15. Annual Fuel Volume (Jet-A and 100LL)

Total number of gallons that passes through the airport by either calendar or fiscal year.

16. Self-Service Fuel Facilities (yes or no)

Self-service fuel facilities provide fuel to the end-user 24/7. They are safe, offer user convenience, and lower operational costs.

17. Type of Airport Governance

Public use airports typically are operated under one of the following types of governance:

1) Airport Authority (port authority or other)
2) Municipality (city, town or county)
3) State
4) Private (operated by a private entity and/or under contract)

18. Landing Fee (yes or no)

Landing fees are usually applied to all transient aircraft. In some cases, such as Love Field in Dallas, the landing fee is applied to all transient and based aircraft.

19. Minimum Number of Tie-Downs Requirements (per Minimum Standards)

Total number of tie-downs required for an FBO as identified in the airport's minimum standards or as required in the lease agreement.

20. Environmental Deice Fees (yes or no)

Environmental Deice Fee is a fee established based on the use of deicing materials (glycol) measured in gallons.

21. Deicer Type I, IV (by volume)

Deicer Type I and IV by volume is the total number of gallons used annually for the purposes of deicing aircraft.

22. Alternative Energy Aircraft/Vehicles

Alternative Energy Aircraft/Vehicles are aircraft operated or powered by a source other than petroleum fuels. Electric and solar aircraft are in development and production.

23. Leasing Policy (yes or no)

A policy document that provides transparent guidance on the airports' leasing practices.

24. Deicing Collection (yes or no)

In the future, the EPA may require an airport to collect and store spent Aircraft Deicing Fluid (ADF) deicing materials, treat it biologically or by distillation, and either dispose of it properly to a sewer system or recover it for reuse.

25. Sustainability Plan (yes or no)

Many airports are incorporating sustainability plans through either a strategic or master plan process.

26. Renewable Energy (yes or no)

Many airports are incorporating a variety of renewable energy sources including solar, wind, biomass, fuel cells, geothermal, and hydropower. Solar is the most common and financially appealing for airports.

1.3 SUMMARY CONCLUSION

Capturing benchmarking metrics (**Table C-1**) is a pragmatic way for Centennial Airport to gain high-level insight into how it compares with "peer" airports in the nation. However, it is important to note that there is no formula for determining success as compared to these other airports. Each airport operates in its own geographic area, supported or burdened by its own policies, political environments, and/or other forms of limitations/requirements. As a result, each airport tracks and records its performance within those unique constraints.

An alternative approach to a high-level direct comparison of the metric data would be for Centennial Airport to track these performance metrics over time to monitor trends for these specific airports. Understanding these trends, and what drives them, can assist APA in recognizing practices that APA themselves can implement or avoid, dependent upon how the operating environment of that compared airport relates to that of APA. ACRP Report 19A, *Resource Guide to Airport Performance Indicators* is one source of information that can help APA better understand how the measured performance indicators can be leveraged.

Table C-1
Benchmarking Metrics

METRIC		Total Operating Revenues	Operating Revenues Per Aircraft Operation	Lease Revenues Per Based Aircraft	Total Staff	Operating Revenues Per Airport Staff	O&M Expenses	O&M Per Aircraft Operation	Labor Expenses Per Employee[2]	Annual Aircraft Operations	Annual Itinerant Aircraft Operations	Number of FBOs	Aircraft Weight Limitations (y,n)	Based Jet Aircraft/Total Based Aircraft	Fuel Flowage Fee (Jet-A/100LL) ($)	Annual Fuel Volume (Jet-A/100LL) (g)	Self Service Fuel Facilities	Type of Airport Governance	Landing Fee (y,n)	Minimum Tie-Down Required	Environmental Deice Fees (y,n)	Deicer Type I/IV (by volume) (g)	Alternative Energy Aircraft/ Vehicles	Leasing Policy (y,n)	Deicing Collection (y,n)	Sustainability Plan (y,n)	Renewable Energy (y,n)
METRIC PURPOSE[1]		*Financial*	*Financial*	*Financial*	*Operational*	*Financial*	*Financial*	*Financial*	*Financial*	*Operational*	*Operational*	*Operational*	*Operational*	*Operational*	*Financial*	*Operational*	*Operational*	*Operational*	*Financial*	*Operational*	*Environmental*	*Environmental*	*Environmental*	*Financial*	*Environmental*	*Environmental*	*Environmental*
Centennial Airport	**APA**	**$7,146,865**	**$21**	**$3,203**	**26**	**$274,879**	**$9,281,168**	**$27**	**$96,784**	**337,998**	**173,631**	**4 (+1 Heliplex)**	**Yes (PPR >75,000 lbs)**	**133 / 816**	**.10 / .08**	**13,626,147 / 640,726**	**Yes - 100LL**	**Authority**	**No**	**25 plus 1 per leased acre**	**No**	**14,336 / 1,932**	**No**	**No**	**No**	**Yes**	**No**
Fort Lauderdale Executive Airport	FXE	$8,340,750	$47	$7,772	21	$397,179	$10,016,188	$56	$62,454	178,369	127,286	6	Yes (PPR >81,000 lbs)	292 / 885	5.5%[5]	9,517,708 / 740,423	No	City	No	N/A			No	No		No	No
Oakland County International Airport[4]	PTK	$4,729,339	$36	$2,554	25	$189,174	$11,175,791	$85	N/A	131,104	67,742	5	No Restrictions up to B737	155 / 509	.09 / .08	10,206,725 / 264,419	No	County	Yes, non-based >12,500lbs	N/A	No	N/A	No	No	Yes	Terminal certified Gold LEED	No
Scottsdale Airport	SDL	$4,540,194	$27	$2,261	15	$302,680	$3,087,591	$19	$78,478	166,191	103,845	2	Yes (75,000 lb Limit)	137 / 353	.08 / .08	10,303,971[3] / 353,669	Yes - 100LL	City	Yes, non-based	N/A			No	No		No	Yes
Van Nuys Airport	VNY	$19,619,592	$75	$24,538	59	$332,535	$22,527,000	$86	$136,661	262,903	165,409	4	Yes	67 / 239	0.11 / 0.11	27,445,069 / 337,925	N/A	City	No	N/A			Yes	Yes		Yes	N/A
Teterboro Airport	TEB	$50,009,000	$286	$165,408	N/A	N/A	$31,414,000	$180	N/A	174,747	174,747	5	Yes (100,000 lb Limit)	116 / 125	N/A	54,010,901 / 44,941	No	Port Authority	Yes, non-based	N/A	No	N/A	N/A	N/A	No	Yes	N/A
Westchester County Airport	HPN	$52,000,800	$333	$50,520	190	$273,688	$57,735,833	$369	$69,492	156,278	140,828	4	Yes (PPR >120,000 lbs)	85 / 269	0.165 / 0.165	34,579,787 / 226,214	No	County	Yes, non-based	N/A	No	98,404 / 10,864[6]	Yes	Yes	Yes	Yes	No
Dekalb County Airport	PDK	$5,987,000	$40	$47,896	23	$260,304	$4,140,000	$27	$77,304	151,132	109,310	5	Yes (PPR >75,000 lbs)	46 / 332	.14 / .14	7,890,599 / 410,530	Yes - 100LL	County	No	N/A			Yes 1 NG Vehicle	No		No	No
Morristown Municipal Airport	MMU	$10,785,864	$140	$32,259	80	$134,823	$7,346,890	$95	$58,905	77,156	49,276	1	Yes	78 / 176	.345 / .305	7,913,208 / 410,530	No	Town	Yes, non-based	N/A	Yes	11,571 / 571	No	Yes	Yes	No	No
Deer Valley Airport	DVT	$3,178,593	$8	$2,491	19	$167,294	$4,171,316	$10	$248,022	404,378	165,409	1	Yes (PPR >91,000 lbs)	23 / 927	0.11 / 0.11	2,345,818 total	Yes	City	No	40			N/A	N/A	N/A	N/A	N/A

Notes:
1) Metric purpose is associated with airport EONS sustainability categories (i.e. economic, operational, natural resources, and social)
2) Cost of living is not factored into labor expenses
3) SDL Airpark tenant group self-fuels 3,172,312 gallons of Jet-A (not through the FBO)
4) PTK financial data includes all three county airports
5) FXE flowage fee is 5.5% of wholesale cost of fuel
6) HPN deicing volumes are for commercial aircraft only
N/A indicates areas where information was not available
PPR = Prior Permission Required

Legend:
Warm climate airports, no deicing operations

Data Collection Sources:
1) Sample Airports
2) ATADS - Total aircraft operations and itinerant activity
3) 5010 - Total based aircraft and total jet aircraft