



# AIRPORT FINANCE 101



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# Introduction

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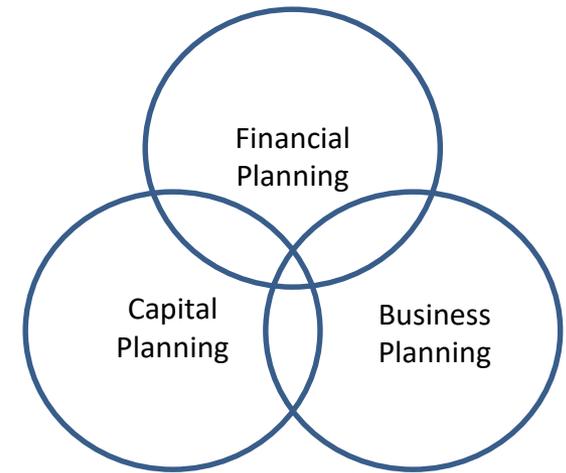
This slide deck is for accounting/finance staff or new consultants to learn airport finance. It incorporates numerous links to reference documents and resources. Links are shown as underlined text, such as the [FAA enplaned passenger data](#).

The most recent version of this slide deck is always at <https://dwuconsulting.com/Finance101.pdf>

For questions or suggestions, please email [dwu@dwuconsulting.com](mailto:dwu@dwuconsulting.com).

# Table of Content

- Basics
  - Providing basics regarding airports, airlines, air traffic, and financial operations
- Financial planning
  - Explaining how to determine airline rates and charges
  - Introducing bond documents
- Capital planning
  - Discussing capital planning and funding sources
  - Evaluating financial results
- Business planning
  - Discussing airport financial objectives
  - Planning airline negotiation
- Rates and charges modeling
  - Reading a deck can be boring; preparing a model for a real airport is exciting!



# Acronym – *what makes us appear professional*

- AIP: [Airport Improvement Program](#) grants
- AUA: airline use agreement
- CAFR: comprehensive annual financial report
- CFC: [customer facility charge](#)
- CIP: capital improvement program
- CPE = cost per enplaned passenger
- FAA: Federal Aviation Administration
- FY: Fiscal year
- GARB: general airport revenue bonds
- O&D: origin and destination
- O&M: operating and maintenance expenses
- OS: official statement for bonds
- PFC: [Passenger Facility Charge](#)
- R&C: rates and charges

# Airport Finance Cheat Sheet

- Bond document and airline agreement are two key documents, different for each airport
- Repaying bond is the top priority, then airport wants to
  - Improve financial
  - Construct facility
  - Maintain airline rates
- Those 3 priorities continue moving through various facility stage
- Airport collects airline revenues, which is regulated, and nonairline revenues, which is unregulated commercial activities
- An airport can let airline pay for all costs (residual), or manage risks itself (compensatory), or split risk/reward (hybrid)
- Residual can only be negotiated, and must be agreed upon by the airlines
- Most airline rates are based on cost recovery, and allocation is key
- CPE evaluates the unit cost of each airline, but is only one of the factors in airline route consideration
- Airline agreement must be design to meet capital needs

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# Basics

## Airport Financial Basics, Airport, Airline, and Air Traffic

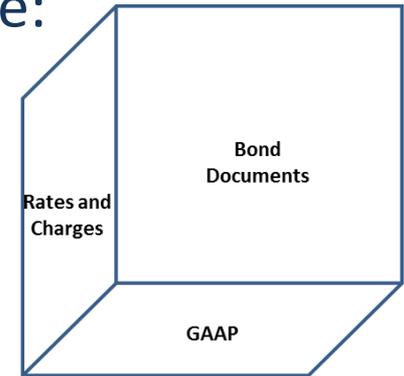
# In short, airport finance is about earning money and spending money

- Many U.S. airports are operated by a separate authority or an enterprise fund of the local government.
  - As of March 2017, 42 of the top 100 largest U.S. airports were managed by independent authorities
- Airports earn revenues from
  - Aeronautical: mostly airline rates and charges that are regulated federally, and
  - Non-aeronautical: parking, rental car, terminal food and beverage, and other revenues that are not regulated
- Airports spend money on
  - Operating and maintaining existing assets, which are expensed
  - Renovating, improving, or expanding facilities, which are capitalized and included in fixed assets. Bond proceeds may fund Those expenses, and airports would pay related debt service.



# Airport finance relies on generally accepted accounting principles (GAAP) to record revenues and expenses

- There are three accounting methods in airport finance:
  - GAAP accounting, which records revenues and expenses in audited financials
  - Rates and charges accounting, which is provided in an airline agreement or airport resolution, and based on adjusted GAAP data to calculate airline rates and charges
  - Bond accounting, which is provided in a bond document, if any, and based on adjusted GAAP data for certain tests
- Every airport is working in a unique 3-dimension world since they have their own airline agreements and bond documents
  - “If you have seen one airport, you have seen [only] one airport...”
  - We need to know many airports to serve one
- This is further discussed in [a separate article](#)

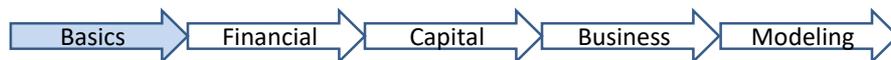


# Revenues: chart of Accounts provides the structure of funds and accounts

*Charts and accounts are established by government policies, airline agreements and bond documents. Independent review of related documents is critical.*

- Airline revenues
  - Landing fees
  - Terminal Rentals
  - Other airline rates and charges, typically user fees in terminal
    - Security fee
    - Baggage claim
    - Common use/per-turn fee, etc.
- Nonairline revenues
  - Parking
  - Rental car
  - Terminal concession (food and beverage, news and gifts, retail, duty-free, advertising, etc.)
  - Ground rentals
  - Cargo rentals
  - Ground transportation fee and others

*The Annual audit is the most reliable source of revenues. The FAA provides airport financial data, which are readily available but not reconciled to audited financial numbers.*

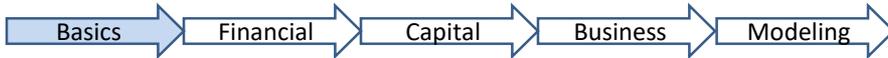


# Expenses: shown in multiple dimensions for budget control

- Example of expenses by line item
  - Category (salaries and wages, professional services, etc.)
    - Object (salaries, healthcare, pension, etc.)
      - Sub-object (regular salaries, overtime, part-time, etc.)

- Example of expenses by organization
  - Group (Operation, security, admin, capital, etc.)
    - Department (Maintenance, operation, etc.)
      - Division (Building maintenance, landscaping, etc. )

*[This sample dashboard](#) shows the expense structure of an airport.  
A detailed discussion is provided in [this article](#).*



# Passengers are not equal, not according to our financial professionals

- Passengers include [enplaned passengers](#) and deplaned passengers
  - Enplaned passengers include origin & destination (O&D) passengers and connecting passengers. O&D passengers are more important to us since they start/end their trips at an airport and bring parking/rental car revenues. Connecting passengers change flights at an airport but may pick an alternate airport to connect next time.
    - As an example, we may fly from SFO (origin), connect through DEN (connecting), and arrive at BOS (destination)
    - The ratio of O&D passengers to total passengers is estimated, based on a [10% sample](#) of all domestic fares and a portion of international fares (U.S. carriers)
  - Passengers can also be split among domestic and international.
  - Passengers include revenue passengers and non-revenue passengers
    - Revenue passengers are reported to the Department of Transportation and [summarized by the FAA](#) annually
    - Non-revenue passengers are only reported to the airport. There is no source showing total enplaned passengers in U.S.



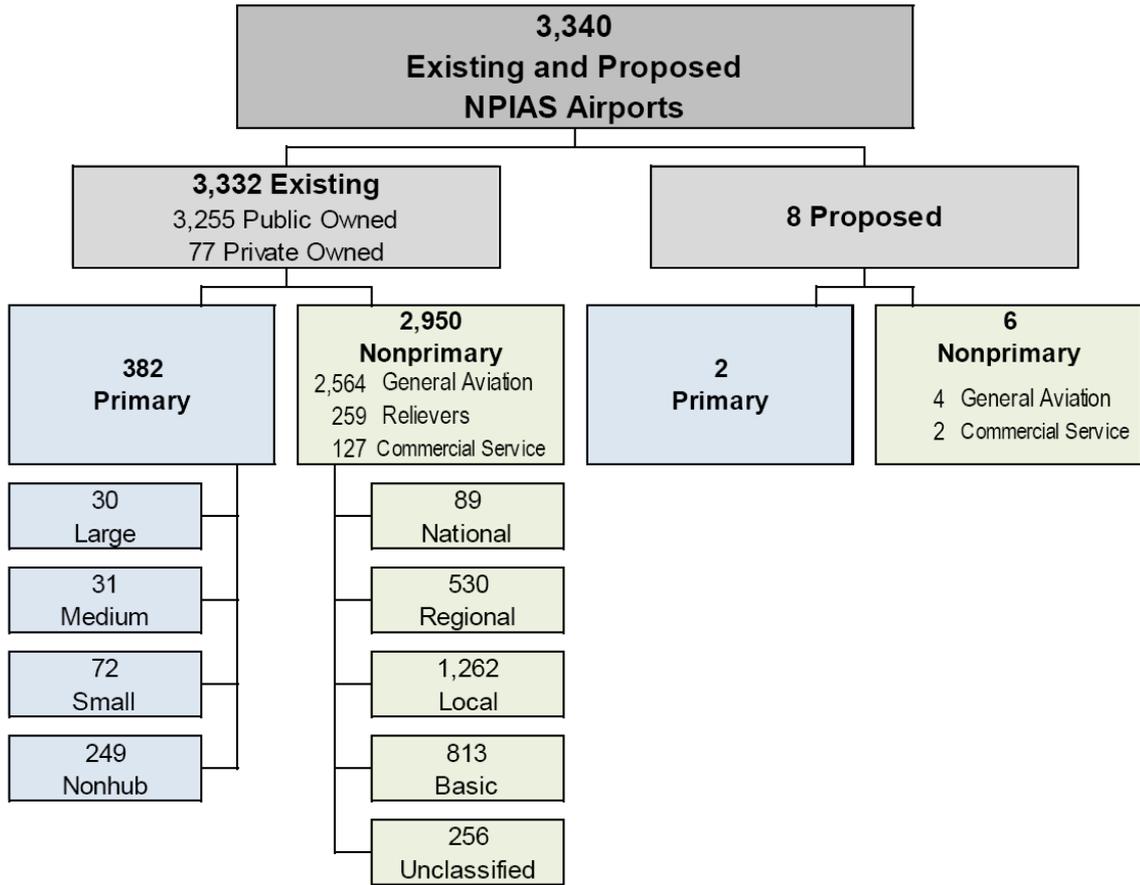
# Seats and load factors are equally important

- Airports don't typically report seat or load factors
  - Historical seat and load factor information can be obtained from [DOT database](#)
  - Scheduled seats for the next 6 months can be obtained from data providers, such as Official Airline Guide
- [FAA Terminal Area Forecast](#) provides a long-range traffic forecast by airport for facility planning purposes
- Airport also report operation numbers
  - One landing + one takeoff = 2 operations, or 1 turn
  - Bureau of Transportation Statistics provides all types of data regarding [delays](#) and operation statistics
- Landed weight is used to calculate landing fees. Airport may also report cargo/mail tonnage

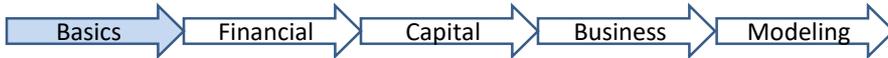


# Painting landing strips in backyard does not make it an airport – it is defined in 49 USC 40102 and identified in [NPIAS](#)

Figure 2: NPIAS Airports by Category and Role



- NPIAS relies on [FAA passenger boarding data](#) to determine the number of airports by category:
  - A [large hub](#) accounted for more than 1% of U.S. revenue enplaned passengers
  - A medium hub has more than 0.25%
  - A small hub has more than 0.10%
  - [Other airports](#)
- This list is updated annually, so the number of large hub keeps evolving
  - Dallas Love Field will be a large hub in the next update



# Airports are identified using a 3-letter IATA code, e.g., ATL for Atlanta

- The FAA publishes [airport diagrams](#), such as [this one for HNL](#).
- Our life is too complicated already, so we simplify this into 3 blocks, referred to as “cost centers”:
  - Airfield or airside, including runways, taxiways, and everything within the fenced area. Airfield is on secured side, or post-security
    - Runways are named by a number from 1 to 36, [see Wikipedia](#)
  - Landside, including the parking garage, rental car facilities, roadways, ground transportations, etc. Landside is pre-security
  - Terminal, which includes pre-security and post-security
    - Concourse is a pier extending from the terminal, such as [concourses at MIA](#)
    - It is always fun trying to find concourse I at MIA, or terminal D at BOS



# Airfield is simple; terminal is not

- Passengers flow through
  - Curbside
  - Ticket lobby/queuing area/ticket counter/ticket kiosk
  - Security checkpoint
  - Post-security
    - Concession area
    - Holdrooms
    - Loading bridge
    - Aircraft parked on ramp/apron
- Their check-in bags
  - Curbside check-in, or
  - Ticket Counter
  - Baggage carousel
  - TSA baggage screening
  - Baggage makeup area
  - Bag tugs/tug drives
  - Aircraft parked on ramp/apron

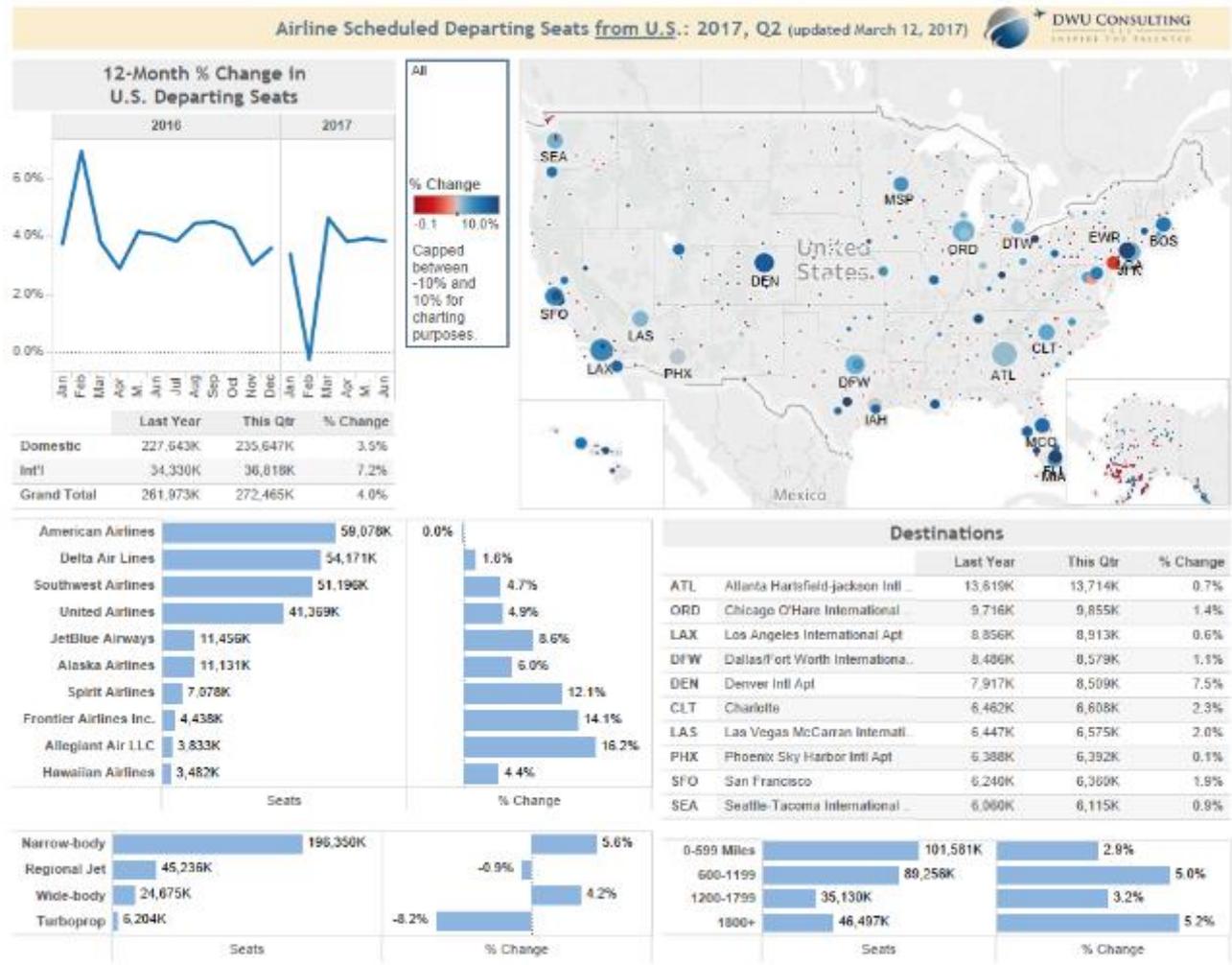


# 4 airlines accounted for 75% of seat capacity at U.S.: American (AA), Delta (DL), Southwest (WN) and United (UA)

- IATA airline code has only 2 digits, and they keep recycling airline codes
- Airlines can be classified as:
  - Hub-and-spoke (DL), which creates mega airports such as ATL, vs. point-to-point (Allegiant/G4)
  - Reporting carrier/mainline (DL), which sells ticket, and operating carrier/feeder (Shuttle America/S5), which operates regional routes
  - Legacy/network carriers (DL/AA/UA), vs. low-cost carriers (LCCs, such as NK)
- LCCs includes Allegiant, Frontier, JetBlue, Southwest, Spirit, and other smaller airports such as Sun Country or Silver
- Alaska-Virgin America merger will create a new airline, likely classified as network carriers



# Seat related information can be analyzed from the [interactive dashboard](http://dwuconsulting.com) on dwuconsulting.com

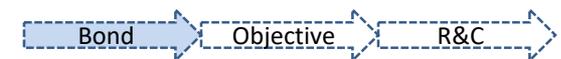
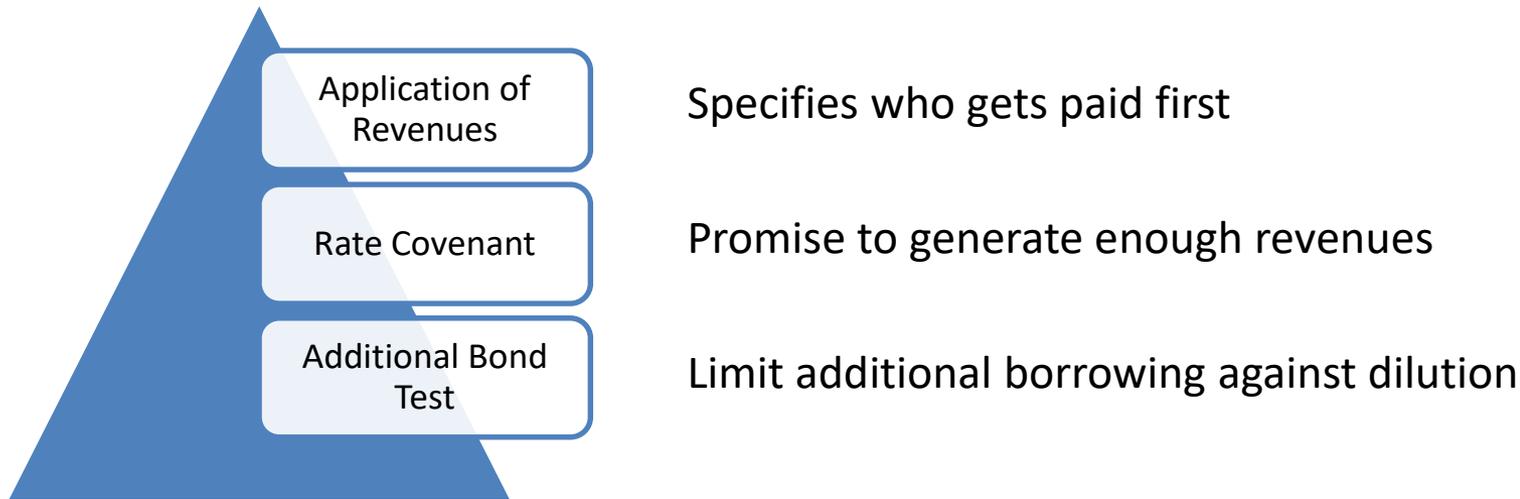


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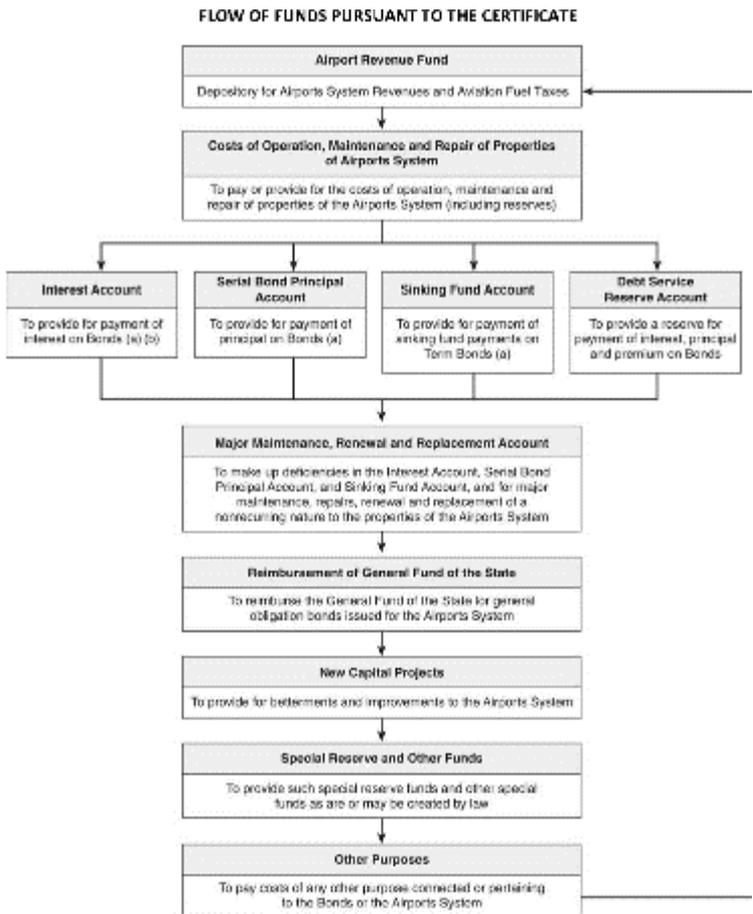
# Financial Planning

# For airports with outstanding bonds, meeting requirements in the bond document is the absolute priority

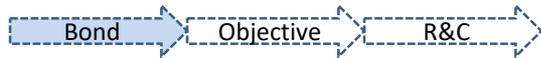
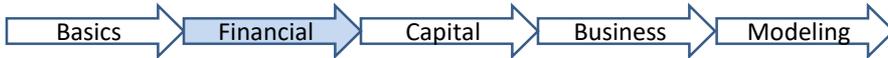
- Bond documents aim to protect the bondholders' interest. If bondholders feel there is no protection, an airport won't be able to sell bonds
- Those bond documents may be named indenture, ordinance, or trust agreement



# Application of revenues is also called flow of funds, showing the priority of payments



- Paying O&M expenses is the top priority because most airports have agreed to make airports available for public use as a condition to receive the AIP grants
- Senior lien debt service has the 2<sup>nd</sup> highest priorities; sometimes deposits to O&M reserve fund has a higher claim
- Each bond document specifies a different set of funds and accounts, creating a unique framework for each airport
- Some documents were written by the same law firm in the past, and use consistent terms, such as “Current Expenses”



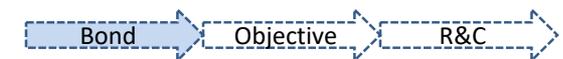
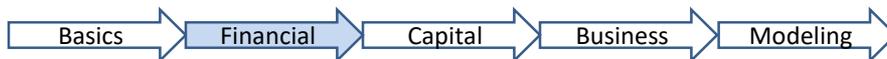
# Rate covenant specifies annual tests that the airport must meet, which may include two components

## Coverage test

- Annual revenues, plus certain additional funds, must be able to meet x% of annual debt service
- This ratio is typically 125% for senior lien or 110% for subordinate lien
- The extra 25% is called “coverage”
  - Hard coverage refers to generating coverage annually from revenues
  - Rolling coverage relies on set-aside revolving funds to meet the 25% test

## One-to-one test (flow test)

- Annual revenues must be able to meet fund deposit requirements in the flow of funds chart
- This reinforces the notion that an airport must be able to generate enough cash flow annually
  - Some airports do not limit the size of the rolling coverage fund; theoretically, they could put 125% of debt service in the rolling coverage fund, earn no revenues, and still pass the coverage test
  - 1 to 1 test, in this case, ensures adequate cash flow is generated, protecting bondholders in the long-run



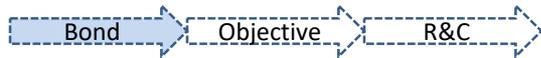
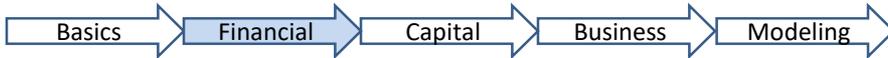
# Additional bond test limits an airport's ability to borrow

## Historical test

- Revenues for the past year or a certain period must be at least x% of Maximum Annual Debt Service, taking into consideration additional bonds to be issued
  - i.e., if an airport has already been earning enough revenues, it can afford to continue issuing bonds

## Prospective test

- Revenues estimated by consultants must be able to meet the rate covenant during (a) x years after issuance, and (b) x years after capitalized interest runs out, whichever is later
- Consultants typically write a bond feasibility report for the official statement for marketing purposes and rely on the report to prepare an additional bond test (ABT) certificate
- If an airport can pass historical test, consultants won't issue ABT certificate to avoid unnecessary liability



# In spite of the fact that meeting bond requirement is the top priority, maximizing profits may not be one of the priorities

federal register

Tuesday  
February 16 1999

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Part II

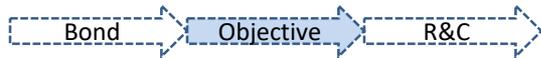
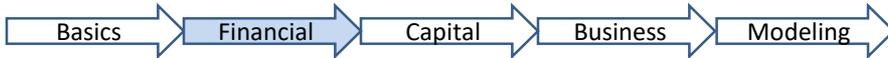
**Department of  
Transportation**

Federal Aviation Administration

Policy and Procedures Concerning the  
Use of Airport Revenue: Notice

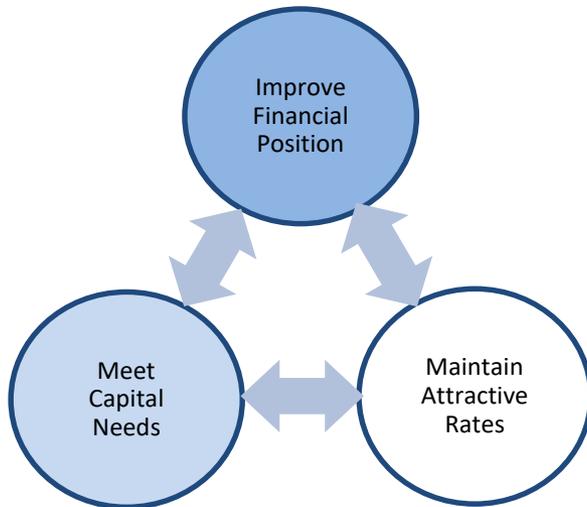
- The [1999 Revenue Use Policy](#) prohibits uses of airport revenues outside airports, except for very limited exceptions
- The [2013 Rates and Charges Policy](#) also discourages establishing new fees to generate excessive surplus

“In establishing new fees, and generating revenues from all sources, airport owners and operators should not seek to create revenue surpluses that exceed the amounts to be used for airport system purposes and other purposes... “

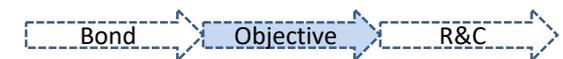
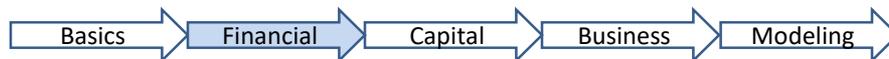


# U.S. airports must balance three objectives after they can generate enough revenues for their operations

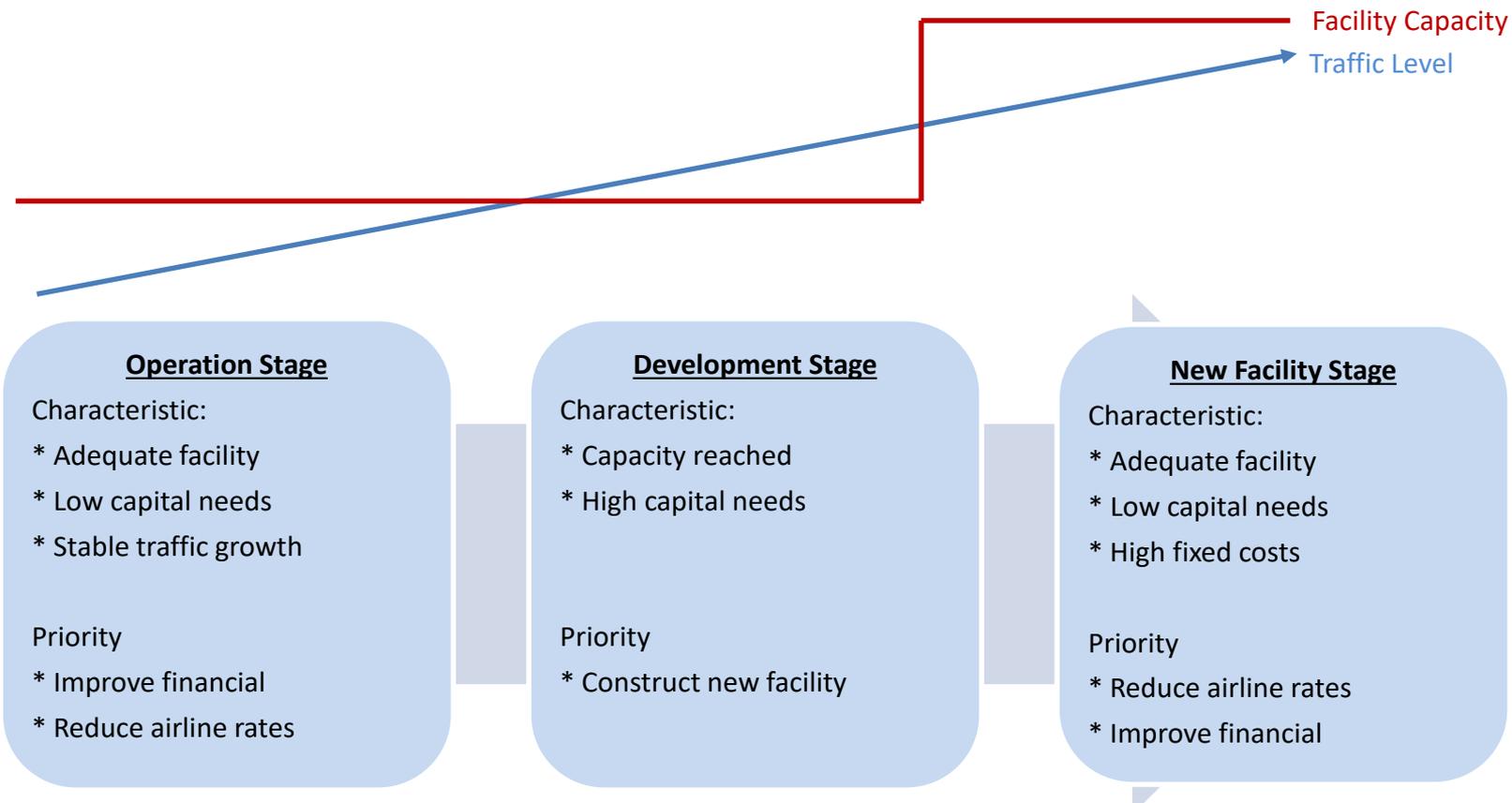
Generate Revenues for Debt Service



- An airport tries to balance the following:
  - Improve financial position: have a higher safety margin, improve cash position, etc.
  - Meet capital needs: construct the facility for existing and anticipated traffic needs
  - Maintain attractive rates: keep rates low, so the airlines can generate a healthy profit and develop air service
- Those 3 objectives must be balanced:
  - Improving financial position may require an airport to increase airline payments
  - Building capital projects may damage financial positions and increase airline payments



# Each airport tries to prioritize among the three objectives through different facility development stage

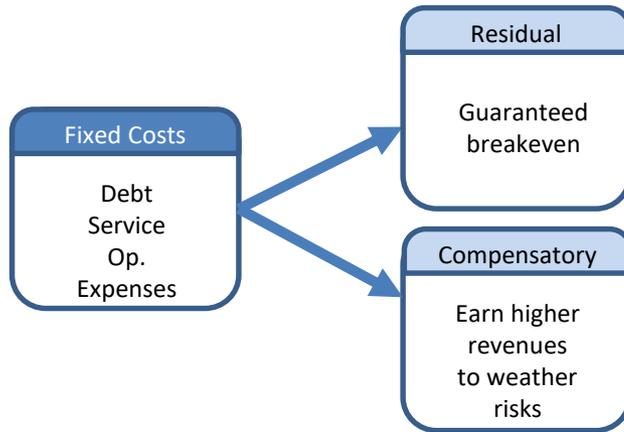


All the main conflicts between airports and airlines are about the capital program:

- Airports want to build facility for future needs
- Having a high cost of capital, airlines want to defer investment when possible

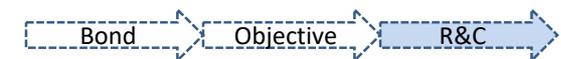
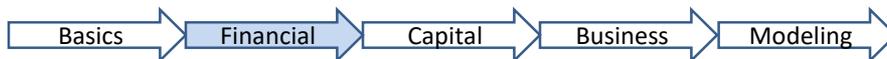


# Facing a relatively fixed cost base, airport operators try to balance risks and rewards

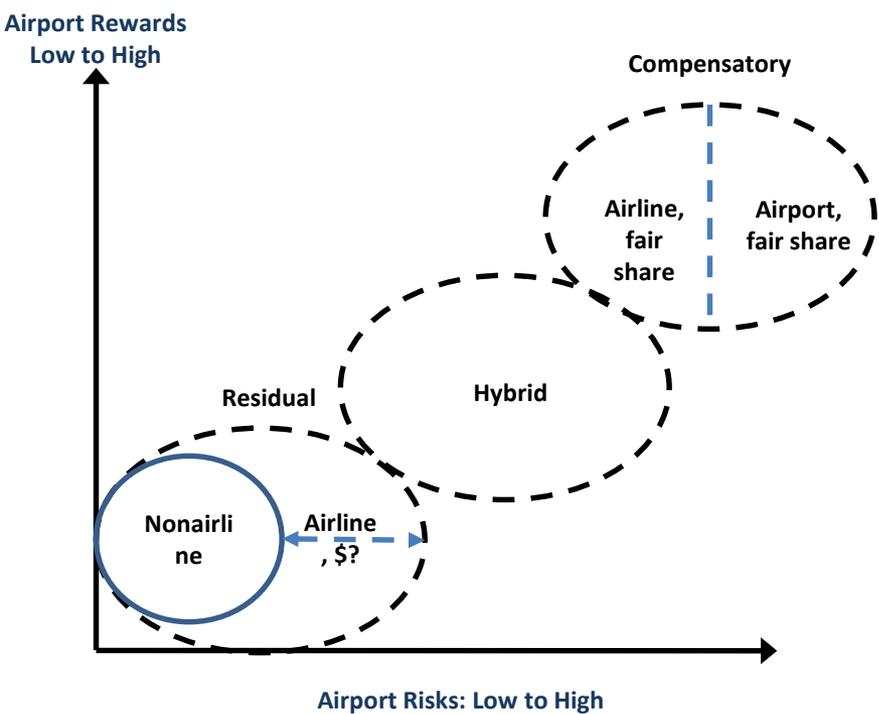


*Residual rate methodology cannot be imposed on the airlines without bilateral agreements.*

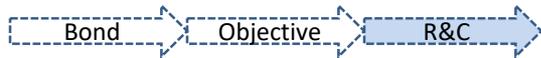
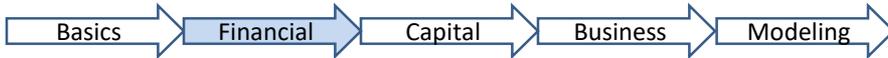
- Airports have two primary options to set airline rates:
  - Residual: airlines agreeing to pay any costs of running the airport that are not allocated to other users
  - Compensatory: the airport operator assumes the major financial risk of running the airport and only charges the airlines for their fair share of costs (instead of whatever necessary to breakeven)
- Related articles
  - [Rate regulation](#)
  - [Rates and charges methodology](#)



# Residual ratemaking provides the highest level of protection, and a compensatory one has the highest profit potential

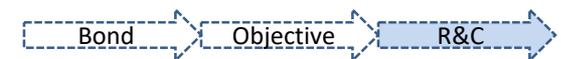
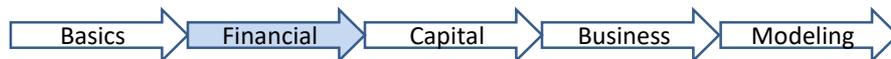


- Some airports decided to take a middle approach, sharing some revenues with airlines
  - Hybrid residual receives a residual protection in exchange
  - Hybrid compensatory does not receive a protection
- Not all airports can generate enough revenues under compensatory
  - A complicated study is needed, requiring rate counsel input
  - If an airport can generate comfortable safety margin under compensatory, it can select either compensatory or residual ratemaking
  - If not, an airport must negotiate for a residual deal



# Airline rates are mostly based on cost recovery, although terminal rate can be based on any reasonable method

- Rate base refers to all types of costs that should be included in the calculation of airline rates and charges
  - Operating expenses and optimization
  - Capital charges
    - Either allocation of debt service, plus amortization of internal cash-funded projects, or
    - Amortization/depreciation of investments, plus
    - Debt service coverage
  - Fund deposit requirements
    - Debt service reserve
    - Operation and maintenance reserve
    - Renewal and replacement fund
    - Maintenance reserve fund, etc.



# The rate base must be allocated to each cost center to calculate rates

*As discussed previously, we review airports having 3 basic cost centers*



## Airfield – Typically residual

- Limited nonairline revenues
- Most costs paid by airlines



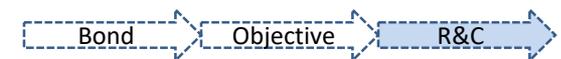
## Terminal – Residual or compensatory

- Airlines pay preferential space on SQFT basis
- Airlines pay many other users fees



## Others – Typically profitable

- Parking and rental car are primary revenues
- May be credited to, or shared with airlines



# Two-step cost allocation is the norm, although any reasonable approach is permissible

- Step 1: Record/allocate direct expenses to direct cost centers
- Step 2: indirect costs are allocated based on the allocation of direct costs
- A more complicated process is shown below

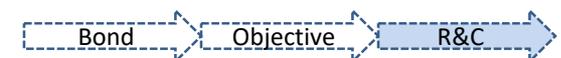
	Direct - 100% to a Cost Center					Indirect - Multiple Cost Centers				Indirect	
	Airfield	Terminal	Ground Trans	Cargo/Mail	Other Aviation	Non-Aviation	Terminal Maint	Support	Security		etc
Airfield	100.0%						15.0%	0.0%	25.0%	35.0%	Admin
Terminal		100.0%					48.0%	100.0%	60.0%	5.0%	
Ground Trans			100.0%				1.0%	0.0%	0.0%		
Cargo/Mail				100.0%			6.0%	0.0%	0.0%	15.0%	
Other Aviation					100.0%		6.0%	0.0%	0.0%	15.0%	
Non-Aviation						100.0%	24.0%	0.0%	15.0%	30.0%	
	100.0%	100.0%	100.0%	100.0%		100.0%	100.0%	100.0%	100.0%	100.0%	Pro rated

- Capital costs should be allocated based on the project costs funded
- O&M allocation, debt service allocation, and space classification are the three critical inputs to a rate calculation



# Landing fees are collected based on maximum aircraft landed weight

- All large-hub airports use the same definition of landed weight “ ... certified by the FAA and specified in the flight manual ...” except BWI that refers to [PASSUR](#), which is also a good idea
- Residual ratemaking is the norm for airfield rate-setting:
  - landing fee requirements equal the sum of debt service, operating expenses and fund deposits, net of nonsignatory and other airfield revenues divided by signatory airline landed weight
  - There may be a premium for non-signatory airlines, which is being phased out due to the needs to issue non-AMT bonds
  - Some airports have fixed landing fee rates
  - Some airports include military, and general aviation landed weight in the divisor, making the rate methodology compensatory, such as GSO
- A list of large-hub landing fee is provided [here](#)



# Compensatory terminal rate uses rentable space as divisor, while residual rate uses rented space as divisor

Gross Building Area				
Non-usable Space	Usable Space			
<ul style="list-style-type: none"> <li>* Stairways</li> <li>* Mechanical</li> <li>* Eleltricial</li> <li>* Utility, etc.</li> </ul>	Non-rentable Space	Rentable Space		
	<ul style="list-style-type: none"> <li>* Public Circulation</li> <li>* Airport Admin</li> </ul>	Nonairline	Airline Rentable Space	
		<ul style="list-style-type: none"> <li>* Concessionaires</li> <li>* Government Agency</li> <li>* Other nonairline Tenants</li> </ul>	<ul style="list-style-type: none"> <li>* Ticket counter</li> <li>* Baggage makeup</li> <li>* Baggage claim</li> <li>* Operation space</li> <li>? Passenger screening</li> <li>? Ticket counter queue</li> </ul>	<ul style="list-style-type: none"> <li>* Ticket office</li> <li>* Holdroom</li> <li>* Baggage service</li> <li>* Other office</li> <li>? Baggage screening</li> </ul>

Note: ? Indicates space that may be rentable or non-rentable.

**Cost Center Residual**

Requirements

- \* Gross requirements
- \* Less: reimbursements
- \* Less: terminal concession revenues

\* Divided by rented space – all costs are fully recovered

**Compensatory**

Requirements

- \* Gross requirements
- \* Less reimbursements

\* Divided by usable space – a small portion of costs is recovered; airport pays for public circulation area

**Commercial Compensatory**

Requirements

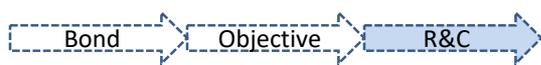
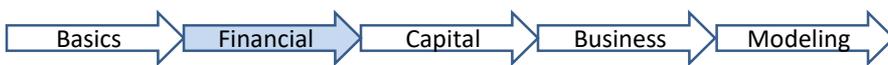
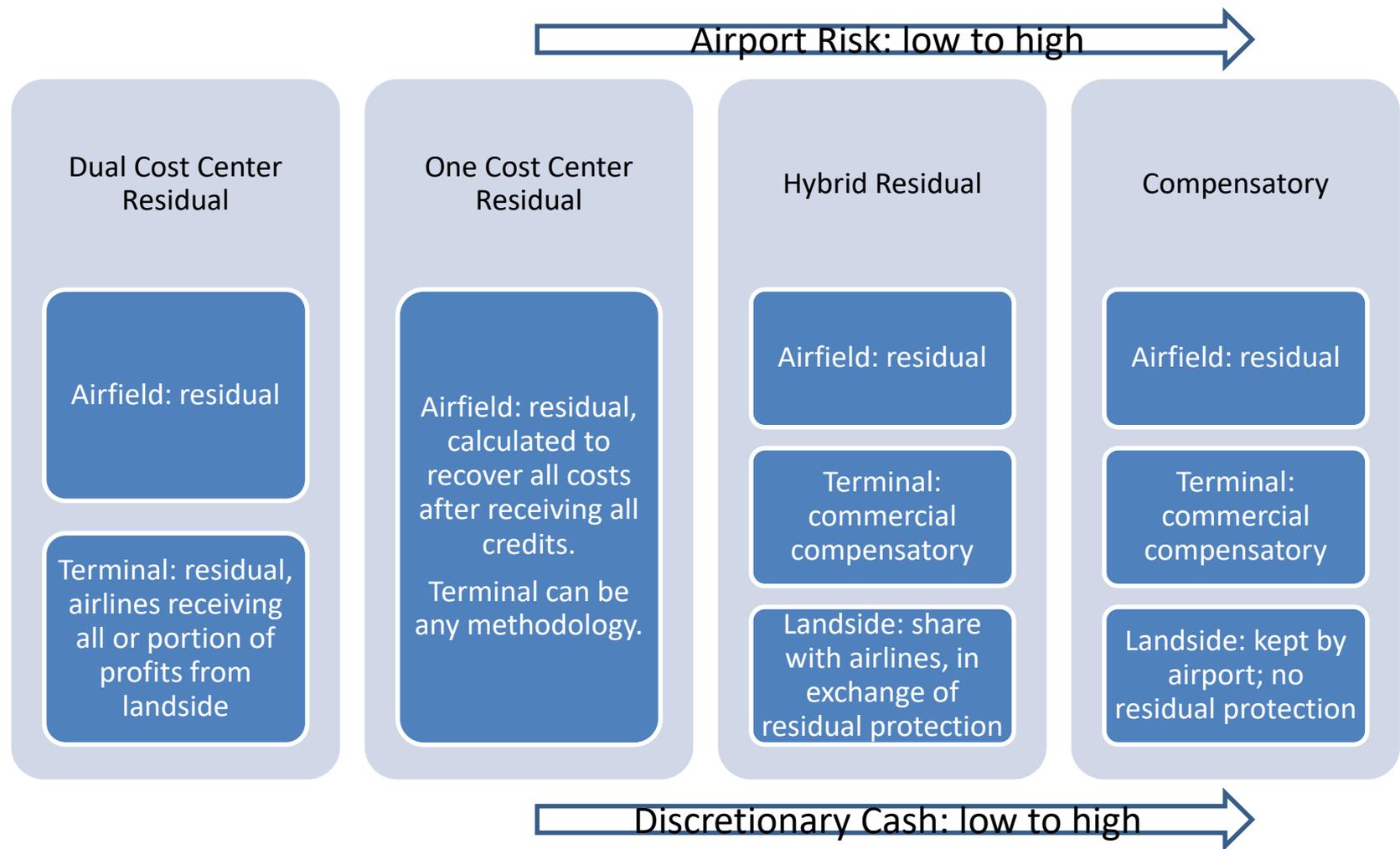
- \* Gross requirements
- \* Less reimbursement

\* Divided by rentable space – a fair share is covered; airport/airlines split the costs of public circulation area

[This link](#) provides rate books for large-hub airports, but rental rates are not comparable.



# Airport-wide ratemaking methodology is determined by who keeps landside profits



# Large-hub

(Anyone has DTW or MSP agreement?)

## U.S. Large Hub Rates and Charges Methodology

(Reviewed March 15, 2017 by Dafang Wu)

Code	City	2015 E.P.	2015 Rank	Overall	Methodology				Expiration
					Airfield	Terminal	Safety Net	Rev Sharing	
ATL	Atlanta	49,340,732	1	Comp	Uncertain	Hybrid	No	No	9/20/2017
BOS	Boston	16,290,323	17	Comp	Residual	Comp	No	No	n.a.
BWI	Glen Burnie	11,738,828	22	Comp	Residual	Comp	No	No	6/30/2019
CLT	Charlotte	21,913,156	8	Hybrid	Residual	Comp	Yes	Yes	6/30/2026
DCA	Arlington	11,242,375	23	Hybrid	Residual	Residual	Yes	Yes	2024?
DEN	Denver	26,280,043	6	Hybrid	Residual	Comp	Yes	Yes	2025/2016
DFW	Fort Worth	31,589,832	4	Comp	Residual	Hybrid	No	Yes	9/30/2020
DTW	Detroit	16,255,507	18	Residual	Airport-R	Residual	Yes	n.a.	9/30/2032
EWR	Newark	18,684,765	15	Comp					
FLL	Fort Lauderdale	13,061,607	21	Residual	Residual	Residual	Yes	n.a.	9/30/2026
HNL	Honolulu	9,479,083	28	Hybrid	Residual	Residual	Yes	No	Qtr to Qtr.
IAD	Dulles	10,363,918	26	Hybrid	Residual	Residual	Yes	Yes	12/31/2024
IAH	Houston	20,595,874	12	Comp	Residual	Comp	No	No	12/31/2027
JFK	New York	27,717,503	5	Comp					
LAS	Las Vegas	21,824,231	9	Hybrid	Residual	Residual	Yes	n.a.	6/30/2020
LAX	Los Angeles	36,351,226	2	Comp	Residual	Comp	No	Yes	12/31/2022
LGA	New York	14,319,924	20	Comp					
MCO	Orlando	18,759,938	14	Comp	Residual	Comp	No	Yes	n.a.
MDW	Chicago	10,830,783	24	Residual	Residual	Residual	n.a.	Yes	12/31/2027
MIA	Miami	20,986,341	11	Residual	Airport-R	Comp	Yes	Yes	4/30/2017
MSP	Minneapolis	17,634,252	16	Comp	Residual	Comp	No	Yes	12/31/2020
ORD	Chicago	36,305,668	3	Residual	Residual	Residual	Yes	n.a.	2018
PDX	Portland	8,340,234	30	Comp	Residual	Residual	No	Yes	6/30/2025
PHL	Philadelphia	15,101,318	19	Residual	Residual	Residual	n.a.	n.a.	6/30/2020
PHX	Phoenix	21,351,445	10	Comp	Comp	Comp	No	No	n.a.
SAN	San Diego	9,985,739	27	Comp					6/30/2018
SEA	Seattle	20,148,980	13	Comp	Residual	Comp	No	Yes	12/31/2017
SFO	San Francisco	24,190,549	7	Residual	Residual	Residual	Yes	n.a.	6/30/2021
SLC	Salt Lake City	10,634,519	25	Hybrid	Residual	Comp	Yes	Yes	6/30/2024
TPA	Tampa	9,150,414	29	Hybrid	Comp	Comp	Yes	Yes	9/30/2015

# Medium-hub ratemaking

(If you have agreements that I don't have, please share a copy.)

## Summary of Rates and Charges Methodology

### U.S. Medium Hub

(as of March 1, 2017)

Code	City	2015 E.P.	2015 Rank	Overall	Agreement?	Airfield	Terminal	Note
DAL	Dallas	7,040,921	31	Hybrid comp	Agreement	Residual	Residual	Expiring 9/30/28 per 2017 OS; can't find agreement
STL	St. Louis	6,239,231	32		Agreement			2016-2020; can't find agreement
HOU	Houston	5,937,944	33	Compensatory	Agreement	Residual	comp	Expiring 6/30/20; can't find agreement
AUS	Austin	5,797,547	34	Compensatory	Agreement	Residual	comp	Month to month; finalize soon per 2017 OS
BNA	Nashville	5,708,852	35	Hybrid comp	Agreement	Residual	Hybrid	Expiring 7/2022
OAK	Oakland	5,506,672	36	Hybrid comp	Resolution	Residual	Hybrid	Credit back concession
MSY	Metairie	5,329,696	37		Agreement			New agreement may start 1/1/16; can't find
MCI	Kansas City	5,135,127	38	Compensatory	Agreement	Residual	Comp	Expiring April 2017
RDU	Raleigh	4,954,717	39	Compensatory	Resolution	Residual	Comp	
SNA	Santa Ana	4,945,175	40	Compensatory	Resolution	Residual	Comp	
SJC	San Jose	4,814,721	41	Hybrid Residual	Agreement	Residual	Comp	Expiring 6/30/17
SMF	Sacramento	4,714,723	42	Compensatory	Resolution	Residual	Comp	In negotiation of agreement
SJU	San Juan	4,218,785	43	Hybrid comp	Agreement	Hybrid	Hybrid	Privatized; fixed escalation
RSW	Fort Myers	4,159,212	44	Hybrid comp	Agreement	Residual	comp	Expiring 9/30/18
SAT	San Antonio	4,091,389	45		Agreement			Expiring 9/30/15 and may have been extended to 2017
CLE	Cleveland	3,916,914	46	Residual	Agreement	Residual	Residual	Month to month after Dec15; may have new agreement
PIT	Pittsburgh	3,890,677	47	Residual	Agreement	Residual	Residual	Expiring 5/8/2018
IND	Indianapolis	3,889,567	48	Residual	Agreement	Residual	Residual	Expiring 12/31/18
CMH	Columbus	3,312,496	49	Hybrid comp	Agreement	Residual	Comp	Expiring 12/31/19
MKE	Milwaukee	3,229,876	50	Residual	Agreement	Residual	Residual	Expiring 12/31/20
OGG	Kahului	3,220,753	51	Hybrid Residual	Agreement	Residual	Residual	No expiration date
PBI	West Palm Beach	3,113,485	52	Hybrid Residual	Agreement	Residual	Comp	Expiring 9/30/19; ECP may not be enforceable
CVG	Cincinnati	3,036,697	53	Hybrid Residual	Agreement	Residual	Residual	Expiring 12/31/20
BDL	Windsor Locks	2,926,047	54		Agreement			Can't find agreement
JAX	Jacksonville	2,716,465	55	Residual	Agreement	Residual	??	Expiring 6/30/2017; can't find agreement
ANC	Anchorage	2,525,876	56	Residual	Agreement	Residual	Hybrid	Expiring 6/30/2023
BUF	Buffalo	2,331,545	57	Hybrid residual	Agreement	Comp	Comp	Expiring 3/31/19; can't find agreement
ABQ	Albuquerque	2,323,850	58	Hybrid comp	Agreement	Residual	Hybrid	Month to month before new agreement
ONT	Ontario	2,089,781	59	Residual	Agreement	Residual	Residual	Expiring 9/30/24
OMA	Omaha	2,046,155	60	Compensatory	Resolution	Comp	Comp	

Source: airline agreements, official statements, and other documents reviewed by DWU Consulting LLC.

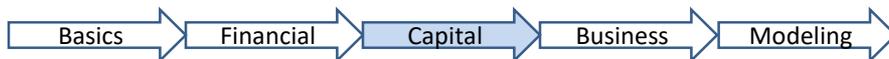
Note: Airline agreements for certain airports are not available, and are noted in Note column.

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# Capital Planning

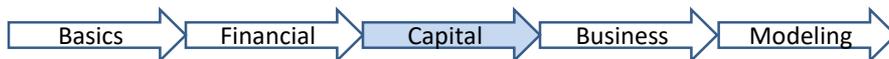
# The U.S. airport industry has a capital needs of \$100 billion from 2017 to 2021

- ACI-NA conducts [capital needs survey](#) once every two years, with the 2017 survey showing a need of \$20 billion annually
  - This compares to actual spending of \$9.8 billion in FY 2015, demonstrating inadequate resources for capital investment
- The FAA requires all airports to file Airport Capital Improvement Plan (ACIP) data. However, most airports only file projects that have a portion to be funded by grants.
- It is not uncommon to see the multi-year multi-billion dollar capital program at large-hub airports.
  - Many airports adopts a rolling 5-year or 10-year CIP annually, removing completed projects and adding new projects, such as [SFO](#)

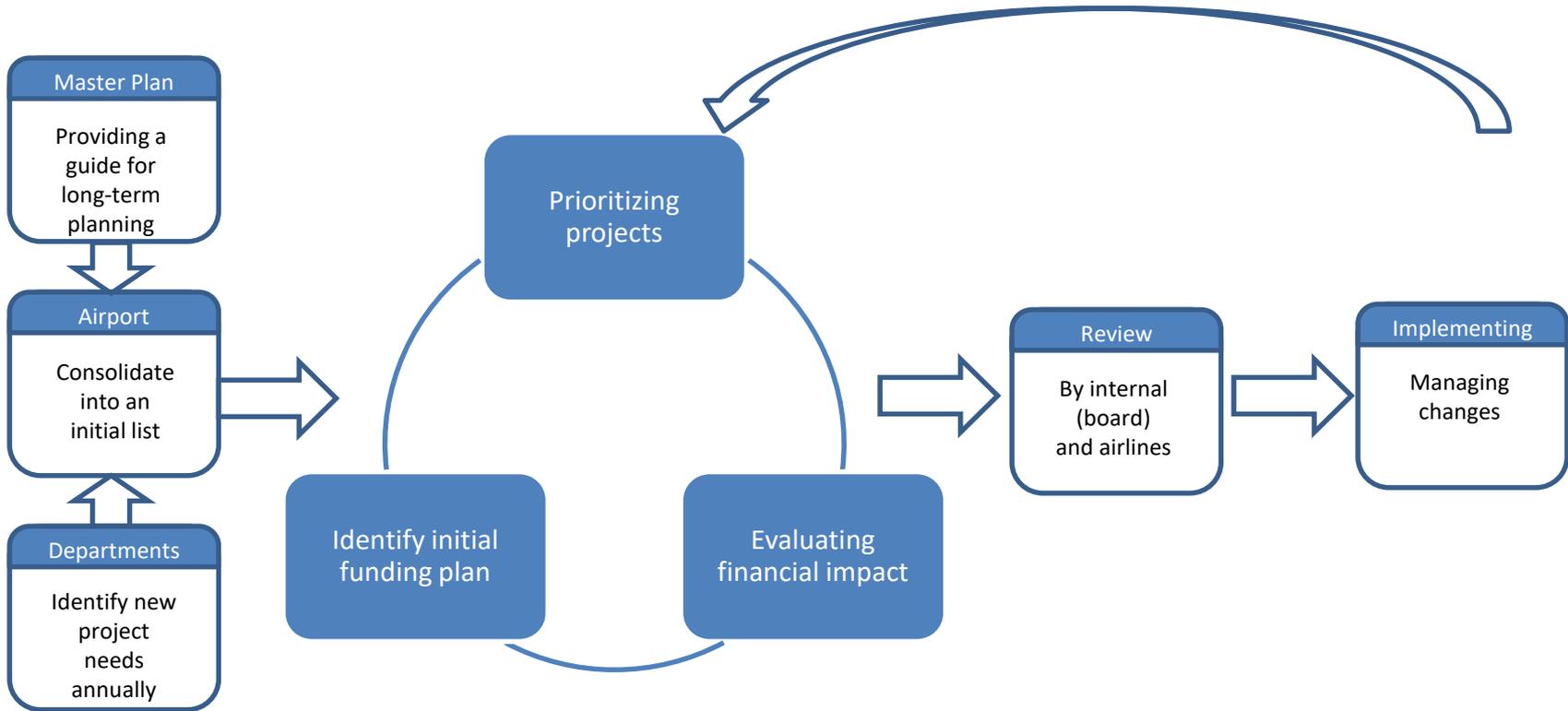


# Tracking and monitoring CIP is a complicated task

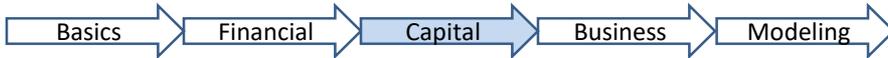
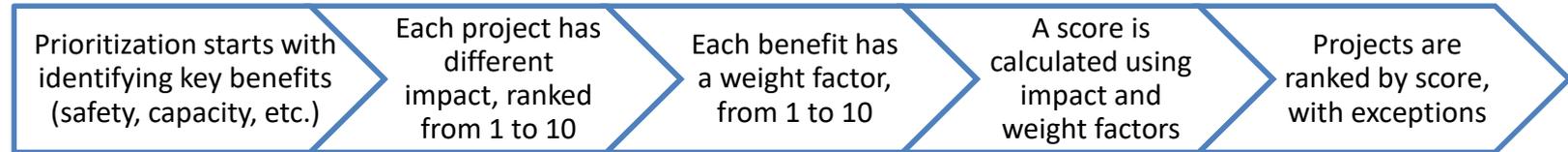
- For complicated capital programs, the quarterly or annual report is necessary, tracking:
  - Number and costs of capital project being implemented
  - Contract status and encumbered amount
  - Funding sources
  - Spending rate
  - Scope and other essential information
  - Airline approval/review status
- A comprehensive solution may include:
  - A program management software: Unifier, CIP Planner, PMWeb, etc.
  - A high-level quarterly report summarizing status
  - A reporting module, or external software, providing interactive capabilities, such as [this sample](#) showing the CIP cash flow, or web solution like such as [PANYNJ](#)



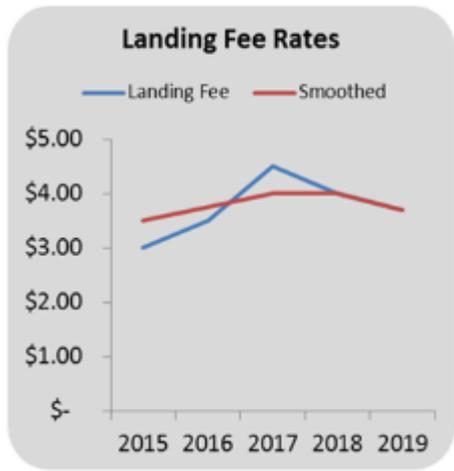
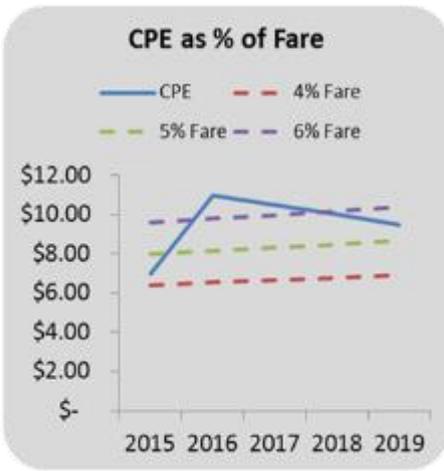
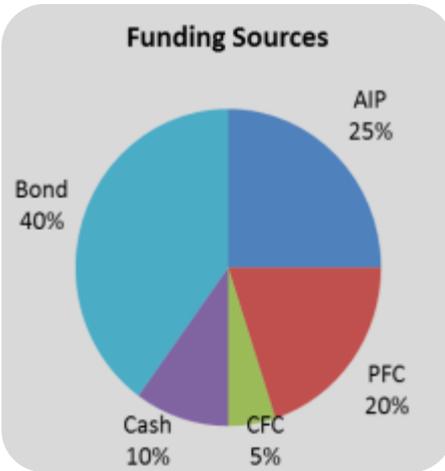
# Capital planning involves a continuous process of identifying projects, prioritizing, funding, evaluating, and reviewing



*Project prioritization is needed even if an airport can currently afford all projects.*



# Effective capital budgeting ensures success for airline negotiation and implementation



### Optimize Funding Sources

- AIP and other grants
- PFC
- CFC and other sources
- Cash
- Revenue Bonds

### Evaluate Reasonableness

- Can we afford it?
  - Rate Covenant
  - Days cash on hand
- Can airlines afford it?
  - CPE
  - CPE as % of fare

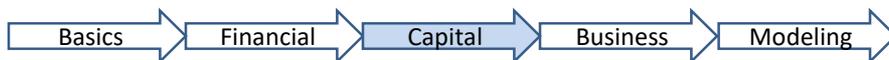
### Improve Plan of Finance

- Restructure debt service portfolio
- Amend bond indenture
- Establish stabilization fund to absorb rate shock
- Provide revenue sharing as incentive



# Developing funding plan starts with maximizing external funding sources

- The FAA distributes entitlement grants based on formula, and discretionary grants based on priority
  - Entitlement grants are distributed based on revenue enplaned passengers of the most recent calendar year. In this manner, grants for federal fiscal year ending September 30, 2017, are based on the calendar year 2015 revenue enplaned passengers
- I have long decided not to write an article about AIP because the Central Region has an excellent [sponsor guide](#)
- Additional resources:
  - [FAA AIP site](#)
  - [FAA AIP handbook](#)
  - [FAA AIP data](#)



# Airlines and airports have been debating Passenger Facility Charge (PFC) for more than a decade

**Key Passenger Facility Charge Statistics**  
as of January 31, 2017

Locations:

- Number of approved locations since inception: 393
- Number currently collecting: 356

Airport Category	Locations Currently Collecting	Collecting at Maximum \$4.50 level
Large	30	29
Medium	29	28
Small	68	65
Non Hub	184	177
Commercial Service	45	42
<b>Total</b>	<b>356</b>	<b>341</b>

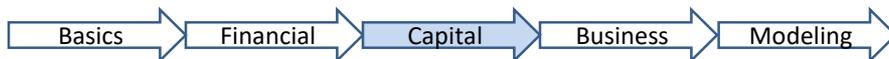
- 96 of top 100 airports enplaning passengers currently collect a PFC. Boise, ID, Omaha, NE, Memphis, TN, and Greenville, SC are not currently collecting.

- PFC is a user fee charged on eligible airport users, currently at \$4.50 level
  - The airport industry has advocated to increase the collection to \$8 or higher
  - The airline industry has strongly opposed to this suggestion because PFC revenues can be used for eligible airport projects without airline approval
- Due to significant capital needs, more airports begin to use PFC to pay debt service, instead of pay-as-you-go
  - Pay-go remains the most efficient use of PFC revenues, but the capacity is limited



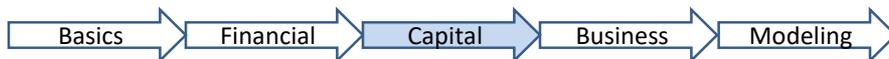
# Customer facility charge (CFC) is available for rental car related projects

- Each state regulates CFC. Some states, like California, have very detailed reporting requirements.
- As shown in the article above, more than half of U.S. airports are collecting CFCs
- The primary use of CFC revenues is for the construction of consolidated rental car facilities (ConRAC), which typically have a consolidated bus system and substantially reduce the curbside congestion
  - CFC revenues can be used to replace lost parking space due to rental car projects, allowing an airport to include ConRAC as part of new parking garage
  - CFC is collected from rental car users, which are typically visitors. Therefore, CFC is easier to implement (*have you seen a hearing to increase taxi trip fee?*)
  - CFCs can be used to repay debt service on ConRAC bonds. Those bonds are typically special facility bonds that won't be paid out of airport revenues

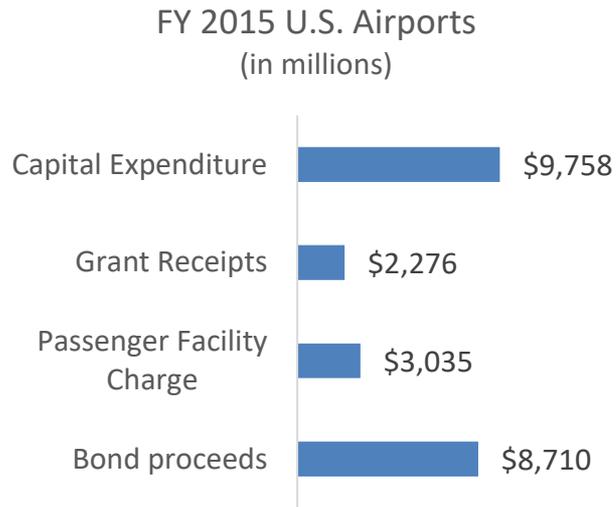


# Other grants could be available, as well as internal cash

- Depending on an airport's specific situation, other grants may be available, such as:
  - Voluntary Airport Low Emission (VALE) grants
  - TIGER discretionary grants
  - Transportation Security Administration grants
  - State grants
  - Other local grants
- Internal cash could serve as an interim funding source. Therefore, when cash is available for a large capital program, cash should be planned towards the completion phase
  - Recovering the cash spent on capital project is one of the most critical measures to improve airport financial situation. If adequate cash were spent previously on airline projects, the continuous recovery could form a long-lasting financial advantage



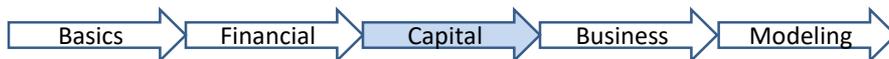
# Revenue bond is the primary funding source for large-hub airports



Source: FAA 5100-127.

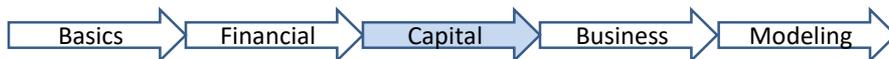
In FY 2015, U.S. airports have long-term debt of \$83 billion, and paid \$3.9 billion of debt service from revenues.

- Airport bonds are unique – they are typically supported by airport revenues only, without backstop of taxing power or collateral
- Classification of bonds
  - By pledged revenue source: revenue bonds, special facility bonds, and general obligation bonds (which is supported by taxing power)
  - By structure: serial bonds and term bond
  - By payment priority: senior lien, subordinate lien, and junior lien
  - By tax status: Non-AMT, AMT, and taxable
  - By borrowing rate: fixed-rate, variable/auction rate bonds



# Airports organize bond teams and spend 3-6 months for each bond issue

- Underwriter
  - Senior Manager (under negotiated sales)
  - Underwriter Counsel/Co-Underwriter Counsel
- Issuer's team
  - Issuer: Airport Authority, or the City/County
  - Issuer's legal counsel
  - Bond Counsel/Co-Bond Counsel
  - Trustee/Trustee Counsel/Co-Trustee Counsel
  - Disclosure Counsel/Co-disclosure Counsel
  - Tax Counsel
  - Financial advisor
  - Airport consultant
- Rating agencies
- Bond insurer
- Financial advisor or underwriter helps an airport to prepare financing scheduled and distribution list
  - Issuer determines the need to issue bonds
  - Select underwriter if in negotiated sales
  - Kickoff meeting
  - Circulate 2-3 drafts of Preliminary Official Statements and Consultant report.
  - TEFRA Notice/Board approval
  - Rating agency presentation
  - Preliminary Official Statement
  - Official Statement
  - Closing



# Inner cover provides bond stats and sources and uses table provides further details

**\$235,135,000**  
**STATE OF HAWAII**  
**AIRPORTS SYSTEM REVENUE BONDS,**  
**SERIES 2015A**  
**(AMT)**

\$ 70,865,000	5.000% Term Bonds due July 1, 2041	Yield 3.850%	Price 109.167 <sup>c</sup>	CUSIP 419794ZN5†
\$ 1,685,000	4.125% Serial Bonds due July 1, 2045	Yield 4.200%	Price 98.731	CUSIP 419794ZM7†
\$162,585,000	5.000% Term Bonds due July 1, 2045	Yield 3.920%	Price 108.581 <sup>c</sup>	CUSIP 419794ZL9†

SOURCES	Series 2015A Bonds
Par Amount	\$235,135,000.00
Net Premium/OID	20,426,230.75
	\$255,561,230.75
Total Sources	
USES:	
Deposit to Project Fund	\$241,409,794.52
Deposit to Capitalized Interest Fund	12,456,562.79
Issuance Expenses <sup>1</sup>	1,694,873.44
Total Uses	\$255,561,230.75

- The inner cover can be used to calculate annual debt service payments
  - Term bonds typically include mandated annual deposit requirements
- Sources and uses table
  - Premium indicates additional proceeds when coupon rate (5.0% exceeds yield (3.85%))
  - Interest payment before the completion of projects funded may be paid from bond proceeds, called “capitalized interest.”
  - There is no deposit to debt service reserve fund in this issue
  - Issuance expenses include underwriter discount and expenses from other bond team participants primarily



# Bond rating is primarily determined by air traffic; financial consideration is important but secondary

	Moody's	S&P	Fitch
Prime	Aaa	AAA	AAA
High grade	Aa1	AA+	AA+
	Aa2	AA	AA
	Aa3	AA-	AA-
Upper medium grade	A1	A+	A+
	A2	A	A
	A3	A-	A-
Lower medium grade	Baa1	BBB+	BBB+
	Baa2	BBB	BBB

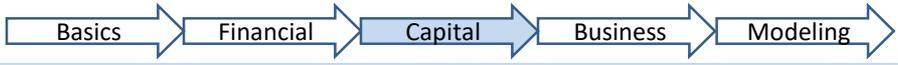
- AA {
  - largely serve major markets, have low historical demand volatility and rank stronger across the revenue and debt structure, and have strong credit metrics
- A {
  - likely serve midsize to large markets, have low to moderate demand volatility, and a mix of stronger revenue risk rankings
- BBB {
  - Generally, include those serving smaller markets or those with more volatile passenger volumes, and have midrange revenue risk rankings with some weaker ones
- BB {
  - typically serve small markets with demonstrated volatility



# Each rating agency publishes annual review and rating criteria online; Moody's clearly shows the rating components

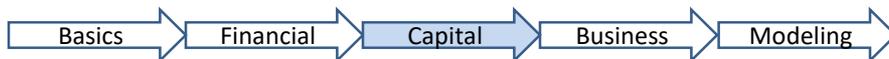
EXHIBIT 2  
Publicly Managed Airport Grid

Rating Factors	Factor Weighting	Sub-Factors	Sub-Factor Weighting
Market Position	50%	Size of Service Area	20%
		Economic Strength and Diversity of the Service Area	15%
		Competition for Travel	15%
Service Offering	35%	Total Enplanements	10%
		Stability of Traffic Performance	10%
		Stability of Costs	10%
		Carrier Base	5%
Leverage and Coverage	15%	Net Revenue DSCR	10%
		Debt per O&D Enplaned Passenger	5%
<b>Total</b>	<b>100%</b>	<b>Total</b>	<b>100%</b>
Liquidity	(notching adjustment)		
Connecting Traffic	(notching adjustment)		
Potential for Increased Leverage	(notching adjustment)		
Debt Service Reserves	(notching adjustment)		



# Cost per enplaned passenger (CPE) is the most commonly used financial metrics for airports

- CPE is discussed in details in the article above. In short, CPE is a useful metric to evaluate airport changes over time but is not suitable to compare performance between different airports.
- Nevertheless, CPE is widely used due to its simplicity and the information it contains.
  - CPEs of all airports are compiled online at my site, such as [large hub](#)
  - The FAA provides CPEs in Form 5100-127, which shows interesting differences from airport reported CPEs
  - Fitch publishes annual peer review, which includes CPEs for the airports it covers
  - Many [official statements](#) include historical and/or projected CPEs



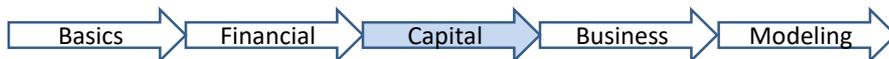
CPE as % of airfare is a useful index, as airport cost is typically 3-6% of airlines operating expenses

Airline for America (A4A) provides an excellent quarterly [review and outlook](#) online



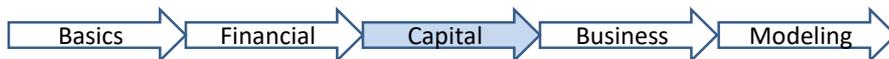
U.S. Airlines: Allocating Capital to Benefit Customers, Employees and Investors

March 17, 2017



# Debt service coverage, days cash on hand and debt per e.p. are also widely used

- Selecting financial metrics or Key Performance Indicators can be tricky for the airport industry, because of various rate making
- [This article](#) discusses the selection of airport financial KPIs. As to debt service coverage:
  - Debt service coverage is not meaningful to pure residual airports
  - Some agreements allows an airport to deposit cash as Revenues to improve coverage
  - Rolling coverage account regularly provides 25%, but sometimes there is no limit
  - Using PFC and other revenues to offset debt service can achieve much higher coverage than on a cash flow basis
- Particular caution needs to be given when comparing any numbers for different airports, including expenses, nonairline revenues, financial ratios, staff count, among other numbers



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# Business Planning

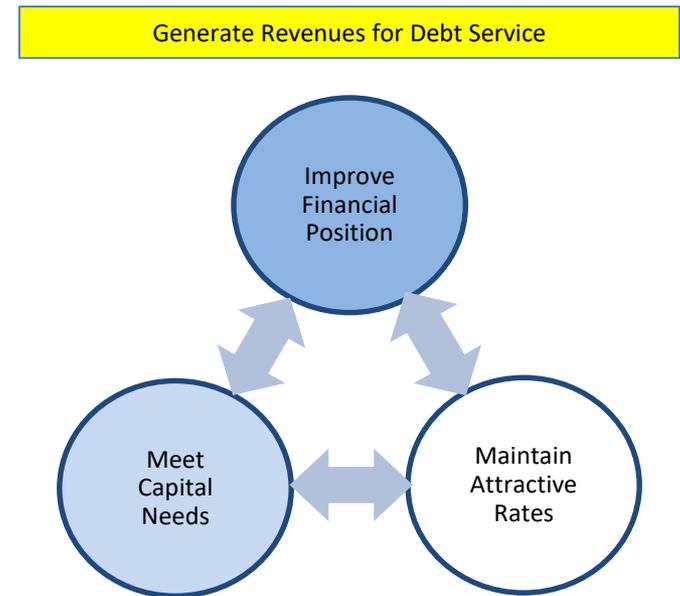
# Negotiating airline agreement requires senior management dedication

- While other agreements are largely handled by property management, airport management must lead the airline agreement negotiation
  - A successfully agreement advances management's visions, such as modernizing airport facilities or encouraging international air service
- A term of 5 years is becoming more popular, giving both airports and airlines a balance of stability and flexibility
- Three key components are involved:
  - Rates and charges
  - Capital review
  - Facility control

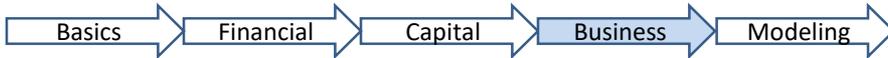
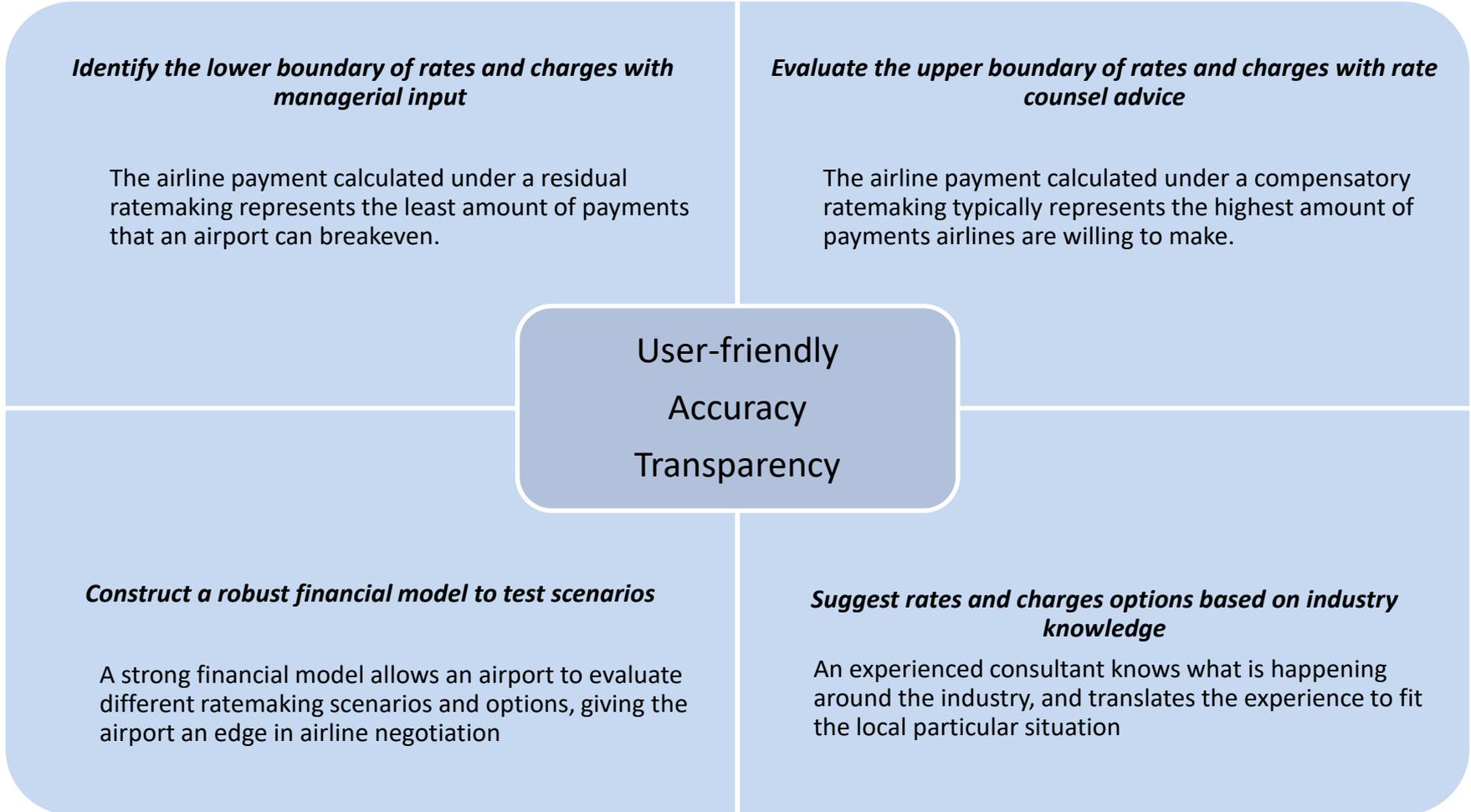


# Internal preparation accounts for 80% of work

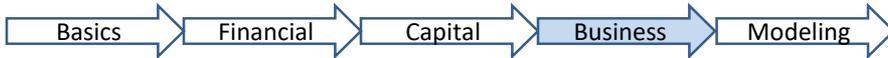
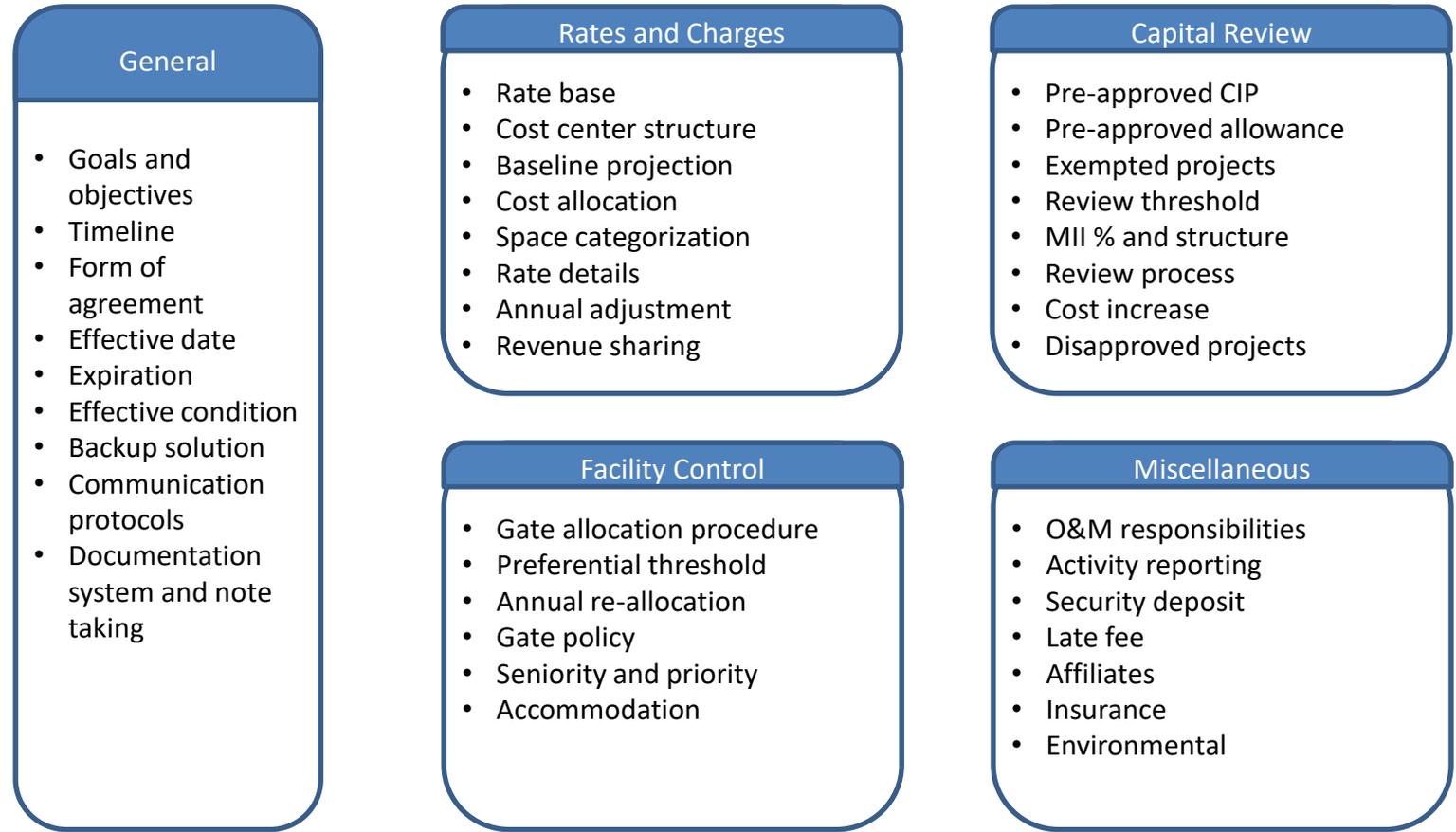
- Identifying goals and objectives is the first step
  - While airports share a common theme of goals and objectives, as shown on the right, their need is entirely different, depending on facility development stage
  - Determining priorities requires involvement of senior management and key stakeholders
- Master plan and other plan studies serve as guidance on long-term development



# Financial modeling provides a sandbox to test options and ideas

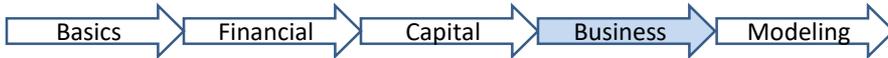


# A term sheet documents key issues for negotiation before detailed language is drafted



# Rates and charges can be simple or extremely complicated ; Per-turn fee delayed many airline negotiations in recent years

Basic fees	Common Use/Per turn	Other miscellaneous fee
<ul style="list-style-type: none"><li>• Landing Fees</li><li>• Terminal Rental Rate</li></ul>	<ul style="list-style-type: none"><li>• Ticket counter (by hour, seat, or use)</li><li>• Bag Makeup (by bag or seat/enpax)</li><li>• Bag Claim (by bag or seat/enpax)</li><li>• Holdroom/apron (by seat/enpax or turn)</li><li>• CUTE</li><li>• Security surcharge</li><li>• Screening surcharge</li><li>• Bag handling equipment</li><li>• FIS</li></ul>	<ul style="list-style-type: none"><li>• Loading bridge</li><li>• GSE</li><li>• Remain overnight</li><li>• Remote parking</li><li>• Fuel flowage</li></ul>



# Rate-setting methodology should dictate capital review process

- Under a residual ratemaking, airlines theoretically have unlimited liabilities, and therefore want to have an active control of capital program
- Under a compensatory ratemaking, many airports don't include capital review process because the airport is taking on the risks
- The known capital needs typically determine the capital review process— if airlines know the airport is planning for some project they don't like, they will try to control the process
  - Affirmative MII: without airline approval, projects can't proceed
  - Negative MII: unless majority of airlines disapprove the project, the airport can proceed
    - Deferral clause: whether an airport can proceed after receiving disapproval
    - Many airport agreements failed to state “the airport has the right to include related costs in the airline rate base if the airport implements the projects after delay.”
- Including a pre-approved CIP in the agreement avoids a lot of hassle down the road
- Having an annual allowance, whether in the form of a fixed amount, or a deposit of certain funds, also alleviates the risks of future debate



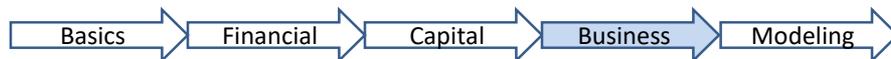
# Similarly, facility control depends on whether an airport lacks adequate facility

- If the airport is gate-congested, facility control becomes a top issue – how to gain more gates for myself and limit gates for my competitors
- Reserving a certain amount of common use gates is critical, which allows new entrants to come into the market. Otherwise, the airport needs to invoke forced accommodation
- Preferential gate qualification needs to be tied to airport-wide usage instead of a fixed amount of activities, because traffic may change dramatically during the agreement term, especially if the term is longer than 5 years
- Annual reallocation seems to be a good idea, allowing an airport to manage gate demands based on most recent activities



# What is lacking in your agreement?

- There is no wrong ratemaking methodology, but there are bad airline agreements in hindsight
  - Those agreements were the best an airport can get through negotiation, but may not have everything an airport initially wanted
  - Unfortunately, I have never seen a negotiation team writing down a “list of failure/wishes” for the next negotiation – *we should!*
- Some common issues:
  - Unrealistic limit on per-turn fee/carriers that prohibits low-frequency carriers
  - Inability to address capital needs and capital outlay
  - Inability to charge airlines for internal cash funded projects
  - Inclusion of administrative space or usable space in space divisor
  - Crediting back revenues airlines do not deserve, e.g., common use fees
  - Unreasonable cost allocation to non-airline cost centers
- I have spent hundreds of hours searching for airline agreements online and still don't have one for all airports, especially medium/small hubs. If you email me yours, I'll give you a list of recommendations!

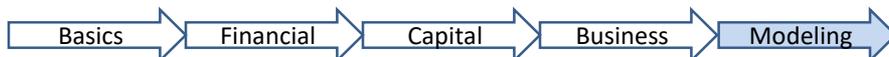


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# Financial Modeling

# Building a model for a real airport is a good way to learn airport finance; building two is even better

- I use two airports for training purposes because they publish all of their rates and charges information online
  - [MIA](#) for residual airports
  - [ALB](#) for hybrid residual airports
    - [Airline agreement](#)
    - [Bond Resolution](#)
- Before proceeding, please review
  - [Excel Formatting Guide](#)
  - [Excel Model Design](#)
- A PDF copy of an old ALB model is included [here](#).



# A model starts with table of content (TOC), assumptions (assmpt) and Template tab

Using the Template tab to build up every other tab guarantees consistency

### Table of Content Albany International Airport

(for the 12 months ending December 31; numbers in thousands except noted)

Tab	Exhibit	Revised Name
A	Exhibit A	Enplaned Passengers and Landed Weight
B	Exhibit B	Capital Improvement Program
B-1	Exhibit B-1	Passenger Facility Charges
B-2	Exhibit B-2	Entitlement Grants
C	Exhibit C	Debt Service
C-1	Exhibit C-1	Debt Service Details
C-2	Exhibit C-2	Future Bonds
D	Exhibit D	Operation and Maintenance Expenses
D-1	Exhibit D-1	Fund Deposit Requirements
E	Exhibit E	Revenues
E-1	Exhibit E-1	Landing Fee Revenues
E-2	Exhibit E-2	Terminal Rental Revenues
E-3	Exhibit E-3	Loading Bridge Revenues
E-4	Exhibit E-4	Passenger Airline Payments per Enplaned Passenger
F	Exhibit F	Application of Revenues
G	Exhibit G	Debt Service Coverage
Airportwide Residual		
wE-1	Exhibit wE-1	Landing Fee Revenues - Airportwide Residual
Cost Center Residual		
rE-1	Exhibit rE-1	Landing Fee Revenues - Residual
rE-2	Exhibit rE-2	Terminal Rental Revenues - Residual
rE-3	Exhibit rE-3	Loading Bridge Revenues - Residual
rE-4	Exhibit rE-4	Airline Payments - Residual
Compensatory		
cE-1	Exhibit cE-1	Landing Fee Revenues - Compensatory
cE-2	Exhibit cE-2	Terminal Rental Revenues - Compensatory
cE-3	Exhibit cE-3	Loading Bridge Revenues - Compensatory
cE-4	Exhibit cE-4	Airline Payments - Compensatory
Supporting Exhibits		
Assmpt		Key Assumptions
Template		Template
P&L		Profit and Loss by Cost Center

### Key Assumptions

#### Albany International Airport

(for the 12 months ending December 31; numbers in thousands except noted)

	Historical		Forecast						
	2013	2014	2015	2016	2017	2018	2019	2020	
<b>TRAFFIC ASSUMPTIONS</b>									
Enplaned Passengers	1,216	1,228	1,284	1,340	1,354	1,368	1,382	1,396	
% Change		1.0%	4.6%	4.4%	1.0%	1.0%	1.0%	1.0%	
<b>Enplaned Passenger Growth Rates</b>									
Base		1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
High		1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
Low		1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	
TAF		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Reserved		1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
		-5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
<b>Landed Weight Growth Rates</b>									
Base		-2.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
High		-2.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
Low		1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	
TAF		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Reserved		1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
		-5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

### Template

#### Albany International Airport

(for the 12 months ending December 31; numbers in thousands except noted)

	Historical		Forecast						
	2013	2014	2015	2016	2017	2018	2019	2020	

# Tab A records enplaned passengers and landed weight, using historical 2013 as the base year

## Exhibit A

### Enplaned Passengers and Landed Weight Albany International Airport

(for the 12 months ending December 31; numbers in thousands except noted)

	Historical	Forecast						
	2013	2014	2015	2016	2017	2018	2019	2020
<b>Enplaned Passengers</b>								
Southwest	504	509	514	519	525	530	535	540
US Airways	262	265	268	270	273	276	278	281
United	233	235	237	240	242	244	247	249
Delta	196	198	200	202	204	206	208	210
JetBlue	-	-	44	88	89	90	91	92
Others	21	21	22	22	22	22	22	23
<b>Total</b>	<b>1,216</b>	<b>1,228</b>	<b>1,284</b>	<b>1,340</b>	<b>1,354</b>	<b>1,368</b>	<b>1,382</b>	<b>1,396</b>
% Change		1.0%	4.6%	4.4%	1.0%	1.0%	1.0%	1.0%
<b>Landed Weight</b>								
Southwest	556	545	551	556	562	567	573	579
US Airways	321	314	317	320	324	327	330	333
United	272	267	270	272	275	278	280	283
Delta	229	224	226	229	231	233	236	238
JetBlue	-	-	52	104	104	104	104	104
Others	30	29	30	30	30	30	31	31
<b>Subtotal Passenger</b>	<b>1,408</b>	<b>1,380</b>	<b>1,445</b>	<b>1,511</b>	<b>1,525</b>	<b>1,539</b>	<b>1,554</b>	<b>1,568</b>
Cargo Airlines	161	158	159	161	163	164	166	167
<b>Total Landed Weight</b>	<b>1,569</b>	<b>1,537</b>	<b>1,605</b>	<b>1,672</b>	<b>1,688</b>	<b>1,703</b>	<b>1,719</b>	<b>1,736</b>
% Change		-2.0%	4.4%	4.2%	0.9%	0.9%	0.9%	0.9%
<b>Landed Weight</b>								
Signatory		1,476	1,541	1,606	1,621	1,636	1,651	1,667
Nonsignatory		61	64	66	67	67	68	69
<b>Total</b>		<b>1,537</b>	<b>1,605</b>	<b>1,672</b>	<b>1,688</b>	<b>1,703</b>	<b>1,719</b>	<b>1,736</b>

Source: Historical - Albany County Airport Authority; Forecast - Dafang Wu.

# Tab B shows a randomly generated CIP and funding sources

## Exhibit B

### Capital Improvement Program Albany International Airport

(for the 12 months ending December 31; numbers in thousands except noted)

Code	Description	Cost Center	Forecast								Funding Sources							
			Total	2014	2015	2016	2017	2018	2019	2020	AIP	State	PFC PAYG	PFC Bond	GARB	Cash	Other	Total
<b>CAPITAL IMPROVEMENT PROGRAM</b>																		
1401-01	Airfield Project 1	Airfield	\$ 3,528	\$ 48	\$ 900	\$ 151	\$ 770	\$ 599	\$ 698	\$ 362	\$ 3,175	\$ 176	\$ 176		\$ -		\$ 3,528	
1401-02	Airfield Project 2	Airfield	5,580	692	883	947	940	964	626	529	5,022	279	279		-		5,580	
1401-03	Taxiway Project 1	Airfield	3,082	875	557	237	466	46	784	117	2,774	154	154		-		3,082	
1401-04	Terminal Project 1	Terminal	3,050	257	336	257	885	551	456	307				3,050	-		3,050	
1401-05	Terminal Project 2	Terminal	4,944	688	732	737	499	984	367	937				4,944	-		4,944	
1401-06	Administration 1	Landside	2,513	407	236	200	516	120	473	561					2,513		2,513	
1401-07	Apron Project 1	Terminal	3,708	557	867	551	641	336	273	483	3,337	185	185		-		3,708	
1401-08	Hangar Project 1	Landside	3,949	461	775	738	606	620	477	272					3,949		3,949	
1401-09	CFC Projects	Landside	2,877	538	742	71	488	221	665	153					-	2,877	2,877	
1401-10	Chiller Plant 1	Terminal	3,455	736	999	209	966	145	208	192					3,455		3,455	
1401-11	Roadway 1	Landside	3,458	885	347	104	98	154	925	945			3,458	-	-		3,458	
1401-12	Roadway 2	Landside	4,495	675	429	444	838	648	589	871			4,495	-	-		4,495	
	Add project above		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Total CIP		\$44,639	\$ 6,818	\$ 7,803	\$ 4,647	\$ 7,713	\$ 5,388	\$ 6,542	\$ 5,728	\$ 14,308	\$ 795	\$ 795	\$ 7,952	\$ 7,994	\$ 9,917	\$ 2,877	\$ 44,639
<b>By Funding Source</b>																		
	AIP		\$ 14,308	\$ 1,955	\$ 2,886	\$ 1,697	\$ 2,535	\$ 1,750	\$ 2,143	\$ 1,342								
	State		795	109	160	94	141	97	119	75								
	PFC PAYG		795	109	160	94	141	97	119	75								
	PFC Bond		7,952	1,560	776	548	937	801	1,515	1,816								
	GARB		7,994	945	1,069	994	1,384	1,536	823	1,244								
	Cash		9,917	1,604	2,009	1,148	2,088	885	1,158	1,025								
	Other		2,877	538	742	71	488	221	665	153								
	Total		\$44,639	\$ 6,818	\$ 7,803	\$ 4,647	\$ 7,713	\$ 5,388	\$ 6,542	\$ 5,728								

Source: Albany County Airport Authority.

# Tab B-1 calculates PFC sources and uses

## Exhibit B-1

### Passenger Facility Charges Albany International Airport

(for the 12 months ending December 31; numbers in thousands except noted)

	Historical 2013	Forecast 2014	2015	2016	2017	2018	2019	2020
<b>Annual PFC Collection Forecast</b>								
Enplaned Passengers	1,216	1,228	1,284	1,340	1,354	1,368	1,382	1,396
PFC Eligibility Ratio	<u>87.9%</u>	<u>90.0%</u>	<u>90.0%</u>	<u>90.0%</u>	<u>90.0%</u>	<u>90.0%</u>	<u>90.0%</u>	<u>90.0%</u>
Passengers Eligible for PFC	1,069	1,105	1,156	1,206	1,219	1,231	1,244	1,256
PFC Collection Level	\$ 4.50	\$ 4.50	\$ 4.50	\$ 4.50	\$ 4.50	\$ 4.50	\$ 4.50	\$ 4.50
Airline Admin Fee	<u>(0.11)</u>	<u>(0.11)</u>	<u>(0.11)</u>	<u>(0.11)</u>	<u>(0.11)</u>	<u>(0.11)</u>	<u>(0.11)</u>	<u>(0.11)</u>
PFC Net Collection Level	\$ 4.39	\$ 4.39	\$ 4.39	\$ 4.39	\$ 4.39	\$ 4.39	\$ 4.39	\$ 4.39
Annual PFC Collection	\$ 4,693 <sup>▲</sup>	\$ 4,852	\$ 5,074	\$ 5,296	\$ 5,350	\$ 5,404	\$ 5,459	\$ 5,514
Interest Earnings	<u>12<sup>▲</sup></u>	<u>12</u>	<u>12</u>	<u>12</u>	<u>12</u>	<u>12</u>	<u>12</u>	<u>12</u>
PFC Collection and Interest Earnings	\$ 4,705	\$ 4,864	\$ 5,086	\$ 5,308	\$ 5,362	\$ 5,416	\$ 5,471	\$ 5,526
<b>PFC Fund Cash Flow</b>								
Beginning Balance	\$ 4,693	\$ 4,698	\$ 4,858	\$ 5,188	\$ 5,366	\$ 4,955	\$ 4,645	\$ 5,533
Annual Collection and Interest Earnings	4,705	4,864	5,086	5,308	5,362	5,416	5,471	5,526
Pay-as-you-go		(109)	(160)	(94)	(141)	(97)	(119)	(75)
Debt Service								
Outstanding Bonds	(4,700)	(4,596)	(4,596)	(5,035)	(5,038)	(5,037)	(3,870)	(3,872)
Future Bonds	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>(593)</u>	<u>(593)</u>	<u>(593)</u>	<u>(593)</u>
Ending Balance	\$ 4,698	\$ 4,858	\$ 5,188	\$ 5,366	\$ 4,955	\$ 4,645	\$ 5,533	\$ 6,520

# Tabs C, C-1 and C-2 include information on debt service and allocation

## Exhibit C

### Debt Service Albany International Airport

(for the 12 months ending December 31; numbers in thousands except noted)

	Historical	Forecast						
	2013	2014	2015	2016	2017	2018	2019	2020
Gross Debt Service								
1993A EFC		\$ 427	\$ 430	\$ 438	\$ 440	\$ 447	\$ 713	\$ -
2003A		475	465	464	472	465	237	240
2006A		291	291	291	291	291	291	791
2006B		813	814	809	813	810	810	314
2006C		404	403	401	399	402	400	402
2010A		9,634	9,634	10,555	10,561	10,558	8,113	8,116
2010B		927	926	-	-	-	-	-
Subtotal Existing		\$ 12,972	\$ 12,962	\$ 12,958	\$ 12,977	\$ 12,972	\$ 10,563	\$ 9,864
Future GARB		-	-	-	596	596	596	596
Future PFC Bonds		-	-	-	593	593	593	593
Total Gross Debt Service		\$ 12,972	\$ 12,962	\$ 12,958	\$ 14,166	\$ 14,162	\$ 11,753	\$ 11,053
PFC for 2010A Debt Service		(4,596)	(4,596)	(5,035)	(5,038)	(5,037)	(3,870)	(3,872)
PFC for Future Debt Service		-	-	-	(593)	(593)	(593)	(593)
Net Debt Service		\$ 8,376	\$ 8,366	\$ 7,923	\$ 8,535	\$ 8,532	\$ 7,289	\$ 6,588
By Cost Center								
Airfield		\$ 1,042	\$ 1,042	\$ 1,069	\$ 1,075	\$ 1,079	\$ 1,227	\$ 516
Terminal		1,224	1,223	1,324	1,922	1,920	1,612	1,614
Bridge		37	37	41	41	41	31	31
Landside		5,522	5,516	4,943	4,948	4,945	3,903	3,909
Parking		277	276	275	276	275	243	244
FBOComm		273	273	272	273	272	272	273
FBOGA		-	-	-	-	-	-	-
Total Debt Service		\$ 8,376	\$ 8,366	\$ 7,923	\$ 8,535	\$ 8,532	\$ 7,289	\$ 6,588

Source: Historical - Albany County Airport Authority; Forecast - Dafang Wu.

# Tab D and D-1 includes information on operating expenses and allocation

## Exhibit D

### Operation and Maintenance Expenses Albany International Airport

(for the 12 months ending December 31; numbers in thousands except noted)

	Historical	Forecast						
	2013	2014	2015	2016	2017	2018	2019	2020
By Category								
Personnel Expenses		\$ 9,529	\$ 9,910	\$ 10,306	\$ 10,719	\$ 11,147	\$ 11,593	\$ 12,057
Employee Benefits		4,746	4,984	5,233	5,494	5,769	6,058	6,361
Utilities and Communications		2,453	2,551	2,653	2,759	2,870	2,984	3,104
Purchased Services		5,712	5,940	6,178	6,425	6,682	6,949	7,227
FBO Costs		5,896	6,132	6,377	6,632	6,898	7,174	7,461
Others		5,494	5,713	5,942	6,180	6,427	6,684	6,951
Subtotal		\$ 33,830	\$ 35,231	\$ 36,690	\$ 38,209	\$ 39,793	\$ 41,442	\$ 43,160
Incremental Expenses		-	300	312	325	339	353	368
Operating Expenses		\$ 33,830	\$ 35,531	\$ 37,002	\$ 38,535	\$ 40,132	\$ 41,795	\$ 43,528
County GO Bonds		95	-	-	-	-	-	-
Total		\$ 33,925	\$ 35,531	\$ 37,002	\$ 38,535	\$ 40,132	\$ 41,795	\$ 43,528
% Change			4.7%	4.1%	4.1%	4.1%	4.1%	4.1%
By Cost Center								
Airfield		\$ 5,551	\$ 5,813	\$ 6,054	\$ 6,305	\$ 6,566	\$ 6,838	\$ 7,122
Terminal		9,422	9,868	10,276	10,702	11,146	11,608	12,089
Loading Bridges		478	500	521	543	565	589	613
Landside		2,962	3,102	3,231	3,365	3,504	3,649	3,801
Parking		5,234	5,482	5,709	5,945	6,192	6,448	6,716
FBO Commercial		1,986	2,080	2,166	2,256	2,350	2,447	2,548
FBO GA & Facilities		2,396	2,509	2,613	2,721	2,834	2,952	3,074
Subtotal		\$ 28,029	\$ 29,355	\$ 30,571	\$ 31,837	\$ 33,157	\$ 34,531	\$ 35,963
FBO Commercial COGS		1,977	2,071	2,157	2,246	2,339	2,436	2,537
FBO GA COGS		3,919	4,104	4,274	4,451	4,636	4,828	5,028
Total		\$ 33,925	\$ 35,531	\$ 37,002	\$ 38,535	\$ 40,132	\$ 41,795	\$ 43,528

Source: Historical - Albany County Airport Authority; Forecast - Dafang Wu.

# E series provide calculations of airline rates and charges

## Exhibit E-1

### Landing Fee Revenues Albany International Airport

(for the 12 months ending December 31; numbers in thousands except noted)

	Historical 2013	Forecast 2014	2015	2016	2017	2018	2019	2020
Airfield Requirements								
Airfield O&M Expenses		\$ 5,551	\$ 5,813	\$ 6,054	\$ 6,305	\$ 6,566	\$ 6,838	\$ 7,122
Airfield O&M Reserve		34	44	40	42	44	45	47
FBO Commercial O&M Expenses		1,986	2,080	2,166	2,256	2,350	2,447	2,548
FBO Commercial O&M Reserve		12	16	14	15	16	16	17
Airfield Debt Service		1,042	1,042	1,069	1,075	1,079	1,227	516
Subtotal		\$ 8,625	\$ 8,995	\$ 9,344	\$ 9,692	\$ 10,054	\$ 10,574	\$ 10,251
Less:								
Interest Earnings		(56)	(56)	(56)	(56)	(56)	(56)	(56)
Glycol Fees		(386)	(386)	(386)	(386)	(386)	(386)	(386)
Apron Fees		(863)	(900)	(934)	(969)	(1,005)	(1,057)	(1,025)
FBO Commercial Revenues Net of Costs of Goods Sold		(3,926)	(4,004)	(4,084)	(4,166)	(4,249)	(4,334)	(4,421)
Airfield Tenant Maintenance		(32)	(32)	(32)	(32)	(32)	(32)	(32)
Nonsignatory Payments		(250)	(252)	(255)	(257)	(260)	(262)	(265)
Net Landing Fee Requirement		\$ 4,838	\$ 5,172	\$ 5,478	\$ 5,785	\$ 6,105	\$ 6,571	\$ 6,279
Signatory Landed Weight		1,476	1,541	1,606	1,621	1,636	1,651	1,667
Signatory Landing Fee Rate		\$ 3.28	\$ 3.36	\$ 3.41	\$ 3.57	\$ 3.73	\$ 3.98	\$ 3.77

Source: Historical - Albany County Airport Authority; Forecast - Dafang Wu.

# Tabs starting with “r” indicate residual ratemaking

## Exhibit rE-1

### Landing Fee Revenues - Residual Albany International Airport

(for the 12 months ending December 31; numbers in thousands except noted)

	Historical 2013	Forecast 2014	2015	2016	2017	2018	2019	2020
Airfield Requirements								
Airfield O&M Expenses			\$ 5,813	\$ 6,054	\$ 6,305	\$ 6,566	\$ 6,838	\$ 7,122
Airfield O&M Reserve			44	40	42	44	45	47
Airfield Debt Service			1,042	1,069	1,075	1,079	1,227	516
Airfield Capital Expenditure			912	950	990	1,031	1,073	1,118
Subtotal			\$ 7,812	\$ 8,113	\$ 8,411	\$ 8,719	\$ 9,184	\$ 8,803
Less:								
Airfield Nonairline Revenues			(2,243)	(2,288)	(2,332)	(2,378)	(2,440)	(2,418)
FBO Commercial Profit & Loss			420	511	609	712	821	938
FBO GA & Facilities Profit & Loss			644	798	962	1,135	1,318	1,511
Net Landing Fee Requirement			\$ 6,632	\$ 7,134	\$ 7,649	\$ 8,187	\$ 8,882	\$ 8,834
Signatory Landed Weight			1,541	1,606	1,621	1,636	1,651	1,667
Signatory Landing Fee Rate			\$ 4.30	\$ 4.44	\$ 4.72	\$ 5.00	\$ 5.38	\$ 5.30

Source: Historical - Albany County Airport Authority; Forecast - Dafang Wu.

# Tabs starting with “c” indicates rates by ordinance calculation

## Exhibit cE-1

### Landing Fee Revenues - Compensatory Albany International Airport

(for the 12 months ending December 31; numbers in thousands except noted)

	Historical 2013	Forecast 2014	2015	2016	2017	2018	2019	2020
Airfield Requirements								
Airfield O&M Expenses			\$ 5,813	\$ 6,054	\$ 6,305	\$ 6,566	\$ 6,838	\$ 7,122
Airfield O&M Reserve			44	40	42	44	45	47
Airfield Debt Service			1,042	1,069	1,075	1,079	1,227	516
Debt Service Coverage			261	267	269	270	307	129
Amortization of Cash Funded Assets								
Airfield Capital Expenditure			912	950	990	1,031	1,073	1,118
Subtotal			\$ 8,072	\$ 8,381	\$ 8,680	\$ 8,989	\$ 9,491	\$ 8,932
Less:								
Airfield Nonairline Revenues			(2,243)	(2,288)	(2,332)	(2,378)	(2,440)	(2,418)
Net Landing Fee Requirement			\$ 5,829	\$ 6,093	\$ 6,347	\$ 6,610	\$ 7,050	\$ 6,514
Signatory Landed Weight			1,541	1,606	1,621	1,636	1,651	1,667
Signatory Landing Fee Rate			\$ 3.78	\$ 3.79	\$ 3.92	\$ 4.04	\$ 4.27	\$ 3.91

Source: Historical - Albany County Airport Authority; Forecast - Dafang Wu.

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Please feel free to select your airport, and send me  
your model for comments!

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