

RATING METHODOLOGY

Table of Contents:

SUMMARY	1
ABOUT THE RATED UNIVERSE	3
ABOUT THIS RATING METHODOLOGY	6
ASSUMPTIONS AND LIMITATIONS, AND RATING CONSIDERATIONS THAT ARE NOT COVERED IN THE GRID	19
OTHER RATING CONSIDERATIONS	20
CONCLUSION: SUMMARY OF THE GRID- INDICATED RATING OUTCOMES	22
APPENDIX A	23
APPENDIX B	26
APPENDIX C	34
APPENDIX D	35
MOODY'S RELATED RESEARCH	38
INDUSTRY OUTLOOK -	38

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Publicly Managed Airports and Related Issuers

Summary

This rating methodology explains Moody's approach to assessing credit risk for rated issuers in the publicly managed airports sector globally. This document provides general guidance that helps issuers, investors, and other interested market participants understand how qualitative and quantitative risk characteristics are likely to affect rating outcomes for issuers in the publicly managed airport sector. This document does not include an exhaustive treatment of all factors that are reflected in Moody's ratings but should enable the reader to understand the qualitative considerations and financial information and ratios that are usually most important for ratings in this sector.

This rating methodology replaces¹ the Airports with Unregulated Rate Setting rating methodology published in July 2011. While reflecting many of the same core principles as the 2011 methodology, this updated document provides a more transparent presentation of the rating considerations that are usually most important for issuers in this sector and incorporates refinements in our analysis that better reflect credit fundamentals in this sector. No rating changes will result from publication of this rating methodology.

This report includes a detailed rating grid (this is also called a scorecard) and illustrative examples that compare the mapping of issuers against the factors in the grid. The grid is a reference tool that can be used to approximate credit profiles within the airport sector in most cases. The grid provides summarized guidance for the factors that are generally most important in assigning ratings to issuers in the airport sector. However, the grid is a summary that does not include every rating consideration. The weights shown for each factor in the grid represent an approximation of their importance for rating decisions but actual importance may vary substantially. In addition, the illustrative mapping examples in this document use historical results while ratings are based on our forward-looking expectations. As a result, the grid-indicated rating is not expected to match the actual rating of each issuer.

¹ This update may not be effective for some regulatory jurisdictions until certain requirements are met, such as local language translation.

The grid contains seven factors that are important in our assessments for ratings in the publicly managed airport sector:

1. Market Position
2. Service Offering
3. Leverage and Coverage
4. Liquidity
5. Connecting Traffic
6. Potential for Increased Leverage
7. Debt Service Reserve Funds

Some of these factors also encompass a number of sub-factors. Since an issuer's scoring on a particular grid factor or sub-factor often will not match its overall rating, in Appendix B we include a discussion of some of the grid "outliers" – issuers whose grid-indicated rating for a specific sub-factor differs significantly from the actual rating – in order to provide additional insights.

This rating methodology is not intended to be an exhaustive discussion of all factors that our analysts consider in assigning ratings in this sector. We note that our analysis for ratings in this sector covers factors that are common across all sectors such as ownership, management, liquidity, corporate legal structure, governance, and country related risks which are not explained in detail in this document, as well as factors that can be meaningful on an issuer-specific basis. Our ratings consider these and other qualitative considerations that do not lend themselves to a transparent presentation in a grid format. The grid used for this methodology reflects a decision to favor a relatively simple and transparent presentation rather than a more complex grid that would map grid-indicated ratings more closely to actual ratings.

Highlights of this report include:

- » An overview of the rated universe
- » A summary of the rating methodology
- » A description of factors that drive rating quality
- » Comments on the rating methodology assumptions and limitations, including a discussion of rating considerations that are not included in the grid

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moodys.com for the most updated credit rating action information and rating history.

The Appendix has a table that illustrates the application of the grid to rated issuers with explanatory comments on some of the more significant differences between the grid-implied rating for each sub-factor and our rating (Appendix B)² and also explains our rating approach for bonds backed solely by airport departure fees with no rate setting ability (Appendix C), and bonds backed by airport rental car charges (Appendix D).

² In general, the rating utilized for comparison to the grid-implied rating is the general revenue bond lien that composes the largest proportion of the debt structure ("reference rating" for municipal issuers in the US or the senior secured rating for issuers outside of the US. For issuers that benefit from rating uplift from parental support, government ownership or other institutional support, we consider the stand-alone underlying credit strength for comparison to the grid-indicated rating.

This methodology describes the analytical framework used in determining credit ratings. In some instances our analysis is also guided by additional publications which describe our approach for analytical considerations that are not specific to any single sector. Examples of such considerations include but are not limited to: the assignment of short-term ratings, the relative ranking of different classes of debt and hybrid securities, how sovereign credit quality affects non-sovereign issuers, and the assessment of credit support from other entities. Documents that describe our approach to such cross-sector methodological considerations can be found [here](#).

About the Rated Universe

This methodology is applicable to issuers whose majority line of business is the operation and maintenance of an airport or airport system and the provision of ancillary services, have unregulated rate-setting ability³, and are generally driven by a cost-minimization motive versus the profit maximization motive that is typical for privately managed airports. The principal source of revenue is derived from airport charges made to passengers and/or airlines for aircraft using the airport, the provision of retail and food concession services to airport users, the provision of ancillary services to airport users, and in some cases the provision of retail and commercial property space for third party users located at the airport (which could be unrelated to airport operations).

This methodology is also applicable to debt obligors that have revenue streams that are serviced by fees/levies on airport-related activities at a publicly managed airport, typically where the volume of transactions on which the fee applies is derived from demand for air travel at that airport. Examples include bonds backed solely by airport departure fees or bonds supported by fees on rental car transactions at airports.⁴

Moody's currently rates approximately 100 airport entities under this methodology. Illustrative mapping of ratings against grid outcomes is shown in the appendix. Combined, the entities account for an aggregate debt of approximately \$110 billion. Most of the issuers currently rated under this methodology (92 of 99) are located in the United States, while the remaining 7 are located in Canada.

All of the publicly managed airports have an unregulated ability to raise rates in a timely manner to cover actual airport costs and debt service. With some limited exceptions, in the United States, Federal Aviation Administration (FAA) rules specify that airport revenues cannot be used for non-aviation related uses, which results in an operating focus more aligned with cost minimization than with profit maximization. To be clear, airports rated under this methodology seek to increase revenues as appropriate, but the levels of debt service coverage are normally well below those entities rated under the Privately Managed Airport methodology.

All US airports rated under this methodology are owned by some form of government entity, the two most common forms are either as an enterprise fund of a local government or as a special purpose authority or district. Given FAA rules on the use of airport derived revenues, we do not make a ratings distinction between city or county enterprise issuers or distinct government entity issuers. In some cases, the entity that owns the airport must pay ground rent on the land underlying the airport to the local municipality. This rent is considered a recoverable expense and the setting of the rent is subject to FAA regulations. The credit profiles of most US airports are distinct from the credit risk of their parent entities/municipalities where

³ Airports in the United States are governed by Federal Aviation Authority regulations restricting the airports ability to only recover through rates the actual costs associated with airport related uses, which provides some small degree of regulation. However, the airports rated under this methodology (including US airports) have the ability to set rates to recover actual airport related expenses and debt service without seeking the ex-ante approval of a third party regulator.

⁴ For clarity, these ancillary service fees/levies may be regulated by a third party. When regulated, they are typically set by a sovereign or sub-sovereign government and are only rarely reduced.

they are located. The FAA's limitations on revenue use (which, absent some grand-fathered airports, generally prohibits distribution of surplus funds to the owner), along with extension of the fundamental service area of an airport beyond the immediate political boundaries of the municipal owner, separates the credit risk of the airport from the parent entity/municipality where the airport is located.

Canadian airports are managed by pure non-share capital corporations with boards that are intended to represent various levels of government and community/business associations, rather than representing any shareholder. These entities are rated under this methodology because their rates are set by their board, they do not seek to maximize profits, and they do not distribute funds to other entities.

Airports that have a profit-maximization motive (which may include making distributions to a parent governmental entity) are rated under the Privately Managed Airports and Related Issuers methodology. Privately managed airports are much more likely to have rates regulated by a third party and/or operate under a finite concession.

The issuers in this methodology represent a diverse group of airports differentiated by scale, market position and geographic service area. The airports rated under this methodology range from issuers that operate all airports in a globally important economic region to issuers that operate a small regional airport in a primarily tourist destination. Service areas correspondingly range from very large to relatively small. Nevertheless, in most cases, the airports managed by such issuers would be considered essential assets within the economic areas they serve. Airports may be in competition with other airports or (to a lesser extent) other modes of transport, but the largest airports and systems serving major economic areas will have a strong element of monopoly power. Airport operators generally face operating risk and counterparty risk that is above other local government issuers, but on a global credit scale, business risk is low. This relatively low business risk is generally coupled with high leverage that often stems from significant capital expenditure to accommodate passenger growth or to meet ever evolving security standards and airplane fleet mixes.

Consistent with the low business risk of entities in North America in this sector, currently all of issuers rated under this methodology are investment-grade. Ratings range from Aa2 to Baa3. Two thirds of the issuers included in this methodology have ratings in the A category despite relatively high leverage compared to issuers in many other sectors. Approximately 94% of issuers have a stable outlook, 3% have a negative outlook and 3% have a positive rating outlook.

Particularly among the rated entities in the United States, the capital structure may contain multiple liens with varied sources of revenue secured to each. In most cases, we consider the lien with the significant majority of debt to be the reference rating. For instance, the Houston (City of) TX Airport Enterprise currently has three liens. A senior lien that represents approximately 20% of the debt structure is currently rated Aa3. The subordinate lien accounts for approximately 79% of the debt structure and is currently rated A1. A third lien, called the inferior lien, represents 1% and is currently rated A2. In this case, we consider the subordinate lien rating (currently A1) to be the reference rating. The following chart illustrates the distribution of reference ratings for publicly managed airports.

EXHIBIT 1

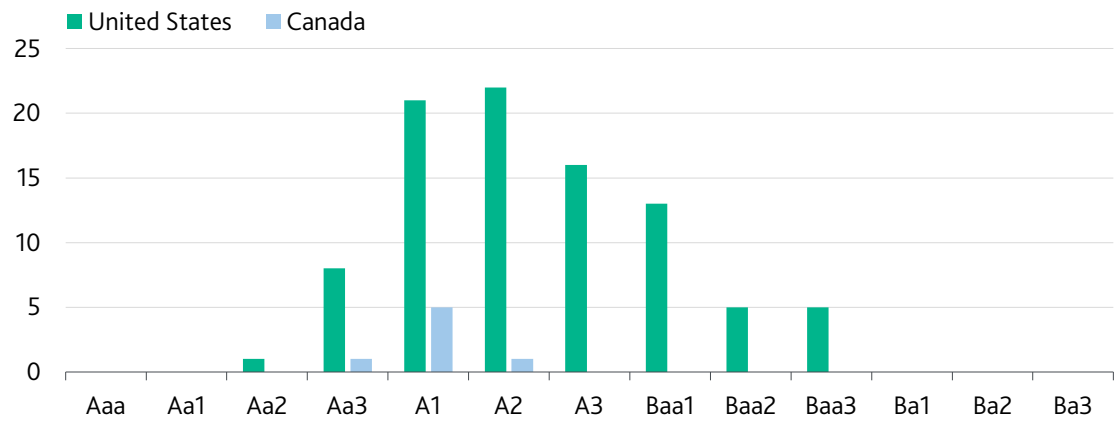
Publicly Managed Airport Ratings

Exhibit 1 reflects the distribution of reference ratings as of October 28, 2015

About This Rating Methodology

This report explains the rating methodology for publicly managed airports in seven sections, which are summarized as follows:

1. Identification and Discussion of the Grid Factors

The grid in this rating methodology is comprised of seven factors. Some of the seven factors are comprised of sub-factors that provide further detail.

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%
Total	100%	Total	100%
Liquidity	(notching adjustment)		
Connecting Traffic	(notching adjustment)		
Potential for Increased Leverage	(notching adjustment)		
Debt Service Reserves	(notching adjustment)		

2. Measurement or Estimation of Factors in the Grid

We explain our general approach for scoring each grid factor and show the weights used in the grid. We also provide a rationale for why each of these grid components is meaningful as a credit indicator. The information used in assessing the sub-factors is generally found in or calculated from information in issuer financial statements, derived from other observations or estimated by Moody's analysts.

Our ratings are forward-looking and reflect our expectations for future financial and operating performance. However, historical results are helpful in understanding patterns and trends of an issuer's performance as well as for peer comparisons. We utilize historical data from recent twelve month periods of reported results (the calendar period might not be the same for all issuers) in this document to illustrate the application of the rating grid. However, the factors in the grid can be assessed using various time periods. For example, rating committees may find it analytically useful to examine both historic and expected future performance for periods of several years or more.

The quantitative credit metrics in the grid incorporate any Moody's adjustments to the income statement, cash flow statement and balance sheet amounts.

The mapping examples in this document utilize reporting currency amounts (USD for US issuers and CAD for Canadian issuers). However, in our analysis we may find it useful to convert all amounts to USD.

3. Mapping Grid Factors to the Rating Categories

After estimating or calculating each sub-factor, the outcomes for each of the sub-factors are mapped to a broad Moody's rating category (Aaa, Aa, A, Baa, Ba, B, Caa, or Ca).

4. Mapping Issuers to the Grid and Discussion of Grid Outliers

In Appendix B, we provide a table showing grid-indicated ratings for each sub-factor and factor for a representative sample of issuers. We highlight issuers whose grid-indicated performance on a specific sub-factor is two or more broad rating categories higher or lower than its actual rating and discuss some general reasons for such positive and negative outliers for a particular sub-factor.

5. Assumptions and Limitations and Rating Considerations Not Included in the Grid

This section discusses limitations in the use of the grid to map against actual ratings, some of the additional factors that are not included in the grid but can be important in determining ratings, and limitations and assumptions that pertain to the overall rating methodology.

6. Determining the Overall Grid-Indicated Rating

To determine the overall grid-indicated rating, we convert each of the sub-factor scores into a numeric value based upon the scale below.

Aaa	Aa	A	Baa	Ba	B	Caa	Ca
1	3	6	9	12	15	18	20

The numerical score for each sub-factor is multiplied by the weight for that sub-factor with the results then summed to produce a composite weighted-factor score. The composite weighted factor score is then mapped back to an alphanumeric rating based on the ranges in the table below.

Grid-Indicated Rating	
Grid-Indicated Rating	Aggregate Weighted Total Factor Score
Aaa	$x < 1.5$
Aa1	$1.5 \leq x < 2.5$
Aa2	$2.5 \leq x < 3.5$
Aa3	$3.5 \leq x < 4.5$
A1	$4.5 \leq x < 5.5$
A2	$5.5 \leq x < 6.5$
A3	$6.5 \leq x < 7.5$
Baa1	$7.5 \leq x < 8.5$
Baa2	$8.5 \leq x < 9.5$
Baa3	$9.5 \leq x < 10.5$
Ba1	$10.5 \leq x < 11.5$
Ba2	$11.5 \leq x < 12.5$
Ba3	$12.5 \leq x < 13.5$
B1	$13.5 \leq x < 14.5$
B2	$14.5 \leq x < 15.5$
B3	$15.5 \leq x < 16.5$
Caa1	$16.5 \leq x < 17.5$
Caa2	$17.5 \leq x < 18.5$
Caa3	$18.5 \leq x < 19.5$
Ca	$x \geq 19.5$

For example, an issuer with a composite weighted factor score of 11.7 would have a Ba2 grid-indicated rating. We used a similar procedure to derive the grid-indicated ratings shown in the illustrative examples.

7. Appendices

The Appendices provide illustrative examples of grid-indicated ratings based on historical financial information and also provide additional commentary and insights on our view of credit issues for publicly managed airports.

Factor 1: Market Position (50% Weight)

Why it Matters

An airport's relative competitiveness for air traffic in its market, competition from other modes of transport, the size, economic base and other fundamental characteristics of the market it serves all act as a proxy for the demand for air travel in the region and its ability to generate revenues to support debt requirements. High levels of demand at competitive costs attract air service, without which the revenue generating ability of airports is significantly impaired.

How We Assess it For the Grid

Size of Service Area

We assess the population size of the market area an airport serves as well as its scope – international, national, major metropolitan area, or smaller urban area/region.

Obtaining the population size of a defined region is usually fairly straight forward as such information is readily available from government sources. However, our assessment of the geographical area served is more qualitative in nature. For an issuer that provides all of the main commercial airport service in a country, the determination of population size is simple, but for major airports within a country, the service area may be larger than is evident simply from the population size of the city that the airport serves directly (for example a gateway international airport). Conversely, the service areas of two regional airports may have some overlap. Ultimately, our scoring may require an element of estimation based on available population and traffic data. To the extent that an area is served by more than one airport, it will affect not only the assessment of the relevant population size, but also the scoring of the Competition for Travel sub-factor.

For airports in the United States, we generally use population estimates for the Consolidated Statistical Area published by the Census Bureau for large airports, reflecting the ability of the airport to draw from the broader service area, while we generally use Metropolitan Statistical Area (MSA) estimates for smaller airports located in a distinctly different MSA from the larger competitor.

Economic Strength and Diversity of Service Area

In scoring this sub-factor in the grid, we assess the size, diversity and robustness of the service area. We consider the size and growth rate of the service area economy, the impact that economic cycles or shocks may have on air travel, and the diversity of the area's industries in order to assess the impact weakness in a single sector may have on the area economy and on the demand for air service.

Airports in large cities that serve as international gateways for an economically well-developed and diversified country tend to have a very strong market position, including direct access to major international destinations and an extensive network of domestic connections, and thus typically have a high score in this sub-factor. An airport serving a relatively small economic region that is heavily dependent on a single industry would typically be scored lower than an airport serving the same sized region with a more diverse economy. Airports serving economic regions that are small, have with weak economic trends and lower or more volatile growth prospects usually have low scores for this sub-factor.

Competition for Travel

For this sub-factor, we consider an airport's proximity to competing airports or other transportation modes, its market position relative to those facilities, the degree to which connecting traffic can be diverted to other airports in the respective airline's route network and the general level of costs to use the airport versus

its competitors. When there are multiple airports in a region and when data is available, we assess an airport's market share by passenger volumes. Airports with very high market shares (typically in excess of 70%) are generally considered to have a dominant position within their air travel market. The judgment as to whether modal competition is material typically depends on an airport's route network (e.g. long-haul versus short-haul) and the nature and state of local transport alternatives. For the sake of simplicity, the lower end of the grid focuses solely on air travel competition, because markets large enough to support multiple airports typically have sufficient demand for multiple modes of transport. Nonetheless, our ratings consider all forms of competition that an airport may face.

An airport that has a monopoly or dominant market position in a given market would have a reduced risk of operational and financial volatility and would thus score higher than an airport that competes with similar or larger airports for the air service of a population. Whilst the vast majority of rated airports currently have a dominant position in their immediate metropolitan area, the outer edges of their service areas tend to overlap with the service areas of other, similar airports. In some cases two or more airports can serve one large, metropolitan area successfully, provided there is sufficient demand for service or the different airports segment the market in some way (e.g. one airport can serve as an international gateway and major connecting hub, while other, smaller airports can focus on servicing short haul leisure passengers and provide greater geographical convenience to certain portions of the metropolitan area). Airports that charge higher fees than their local competition for O&D passengers are also at a disadvantage for attracting new service and score lower on the grid. Their respective market positions are considered for scoring this sub-factor.

An airport that serves a large volume of connecting traffic faces potential risk that the airline(s) that route passengers through the airport can choose to route passengers through another airport in the respective route network. The loss of connecting passengers may leave stranded capital costs for oversized facilities, thus increasing unit costs to new entrant airlines, while also depriving the airport of concession revenues. Holding competition for origination and destination traffic constant, airports that display clear cost advantages score at the high end of the grid while airports that operate at a cost disadvantage score in the middle ranges of the grid. When assessing the relative costs of an airport, the assessment typically includes not only direct airline costs, but also local fuel or other taxes, passenger departure fees, or local labor requirements that might raise direct costs to airlines.

Airports also compete with other means of transport. Given the relatively small number of airports within any region, air travel will generally not be competitive with road or rail traffic for distances under about 200 miles (other than in countries with an under-developed or poorly maintained road and/or rail network). Conversely, given the time savings, other passenger transportation modes won't typically compete strongly with airports for distances over 500 miles.

FACTOR 1

Market Position (50%)

	Factor Weight	Aaa	Aa	A	Baa	Ba	B	Caa
Size of Service Area (millions)	20%	≥ 5	1.5 – 5	0.75 - 1.5	0.25 - 0.75	0.1 - 0.25	0.05 - 0.1	< 0.05
Economic Strength and Diversity of Service Area	15%	Serves a large international gateway city with a highly diversified economy with solid historical and projected growth	Serves a large city or region with a strong and well diversified economic base with solid growth	Serves a city or region with a developed and reasonably diversified economic base	Serves a city or region with a developed and reasonably diversified economic base, but subject to some industry concentration	Serves a city or region that is small or has an evolving economy currently underperforming relative to the country's average	Serves a city or region with a deteriorating or economic base and very little diversification	Serves a city or region with a poor economic base with difficult recovery prospects and limited diversification
Competition for Travel	15%	Has virtual monopoly with no reasonable alternatives; or Faces competition for connecting traffic from other hub airports but has substantial cost advantages	Has dominant position for providing origin and destination air travel in its geographical area; or Faces competition for connecting traffic from other hub airports but is price competitive	Limited competition with similar or weaker airports across a broad service area; demand impacted by robust rail travel; or Faces competition for connecting traffic from other hub airports and is high cost or faces other limiting factors	Substantial competition with similar airports nearby or stronger airports in reasonable driving distance; or at a cost disadvantage to competing airports.	Has a minority of air travel in its market area and serves a particular niche	Has a minority of air travel in its market area and does not occupy a substantial market niche	Offers no substantial competitive air service

Factor 2: Service Offering (35% Weight)

Why it Matters

Airports are primarily dependent on the supply of airline service to derive revenues. Stability of airline service and diversity of the airline service are important drivers of stable revenue streams. Providing stable costs to airlines is important to maintaining the mix of airlines serving the airport, as some airlines may operate a low-cost, low-yield strategy and increasing costs could price them out of the market.

How We Assess it For the Grid

Total Enplanements

The size of the service offering is an important factor in our assessment. Airports with large numbers of passengers are likely to play key roles in either the national economy or the national air transportation network. Large airports are also less likely to see large percentage scale decreases in passenger levels as the likelihood of available capacity at competing facilities to accommodate the large number of diverted passengers is low. Airports with greater than 10 million annual enplanements score at the high end of the grid while airports serving less than 250,000 enplanements score at the low end.

For the grid, we use enplanements (the number of passengers departing, or "enplaning", from the airport on an annual basis). The great majority of the currently rated airports under this methodology are located in the US, where this metric is commonly reported by issuers and government sources such as the Bureau of Transportation Statistics. For jurisdictions where enplanements are not reported, we estimate enplanements, typically by dividing the number of total passengers by two.

Stability of Traffic

For this sub-factor we consider historical passenger traffic information as a tool to assess the likely future traffic performance. As part of our assessment, we generally look at the historical standard deviation of the annual year-on-year growth rates of passenger traffic over a number of consecutive years (typically ten years or more) as well as the overall growth trend. We also look to expectations of growth. For instance, an airport may have seen significant volatility and declines as an airline withdrew connecting service but the airport is expected to resume modest growth. Conversely, an airport may have seen a period of stable positive growth, but due to limited capacity, growth is expected to flatten. Typically, airports that have displayed low volatility with positive growth will score highly on this factor while airports with a highly volatile and declining trend with expectations of further declines would score poorly.

Stability of Costs

Stability of costs that airlines or passengers pay to access the airport is an important predictor of future airline service, assuming that a strong market position exists to keep demand strong enough to remain profitable for airlines. Large increases in costs can reduce the profitability of some routes and result in the loss of service from airlines. Decreasing costs may serve to attract additional service from new entrants, particularly if those new entrants pursue a low cost strategy. Thus, airports that we expect to have declining costs will score highly in the grid and airports that we expect to experience large cost increases will score on the low end of the grid.

When we assess costs for airports in the United States, we may assess the commonly reported metric of airline costs per enplanement (CPE), although we may also consider other indicators or signals for cost trends in our assessment of likely future cost changes. For airports outside of the United States, CPE may not be reported. In such cases, we typically look at all direct costs that are assessed to airlines and passengers for flight services, such as airport departure fees and taxes.

Our analysis also considers the levels of total costs. A scenario where costs are expected to rise above inflation levels but are expected to remain below peers is viewed to be stronger than a situation where the above inflation increase will cause costs to be above those of peers.

In addition to the potential effect on air service, the stability of costs also speaks to the ability of airport management to control costs to provide sufficient net revenues to service debt.

Carrier Base

For this sub-factor, we assess the airport's exposure to the risks associated with the airlines operating at the airport, including their diversity or concentration and their credit profiles.

We assess the diversity of the airlines measured by the share of passenger traffic served by the primary carrier at the airport. There are many benefits from diversity, including reduced dependence on a single airline for passenger traffic and gate fee revenues and reduced risk of a sharp decrease in traffic should an airline discontinue service or go out of business. Furthermore, a market place with substantial service from many airlines typically indicates the strength of the market, and a crowded marketplace prevents a single carrier from using market power to drive up airfares and suppress passenger traffic.

We note that the calibration of this factor is based on air service in the United States and Canada, the two markets that comprise all of our current ratings under this methodology. Air service in each market is currently stable after a wave of industry consolidation that has resulted in heavily concentrated industries with airlines that are unlikely to liquidate. Airports in markets with less mature air service or with primary airlines with substantially weak credit profiles may score below the market share thresholds that would otherwise be suggested by the grid.

FACTOR 2

Service Offering (35%)

	Factor Weight	Aaa	Aa	A	Baa	Ba	B	Caa
Total Enplanements (millions)	10%	≥ 10	5 - 10	3 - 5	1.25 - 3	0.4 - 1.25	< 0.4	No scheduled enplanements or no available historical data
Stability of Traffic Performance	10%	Track record of strong enplanement growth with low volatility (typically with a standard deviation < 4%); strong growth expected	Track record of traffic growth with moderate volatility (typically with a standard deviation < 5%); expectation of moderate growth	Stable to slightly positive traffic performance with moderate volatility (typically with standard deviation < 7%); expectation of moderate growth	Stable to slightly declining track record with high volatility (typically with standard deviation > 7%); expectation of stable traffic levels	Track record of declining traffic with high volatility (typically with standard deviation > 7%), but traffic expected to stabilize	Track record of declining traffic with high volatility and expectation of continued declines	No historical data or Start-up airport or Data of questionable quality
Stability of Costs	10%	Cost to airlines are expected to fall and recent growth has been below CPI	Cost to airlines are expected to remain flat or grow below CPI	Cost to airlines expected to grow at or very slightly above CPI	Cost to airlines expected to grow well above CPI, but cost levels will remain below peers	Cost to airlines expected to grow well above CPI, but cost levels will be competitive with peers	Costs to airlines expected to grow well above CPI, and cost levels will be above peers	Costs have been significantly higher than peers and increases are extremely large and rapid
Carrier Base (Primary Carrier as Percentage of Total Enplanements)	5%	<20%	20% - 30%	30% - 45%	45% - 80%	80% - 95%	95% - 100%	100%

Factor 3: Leverage and Coverage (15% Weight)

Why it Matters

Leverage and coverage measures are indicators for an issuer's financial flexibility and long term viability, including the ability to adapt to changes in economic and business environment in the segments in which they operate.

How We Assess It For The Grid

Debt Service Coverage by Net Revenues

Revenue, net of operating and maintenance expenses, relative to total debt service is an important financial indicator in our credit analysis. The debt service coverage ratio (DSCR) provides an indication for the degree to which capacity for required debt service payments is sensitive to negative volatility in revenues. In each case, our focus is on the total debt serviced by the pledged (or available) revenue stream.

The inputs for the DSCR calculation vary slightly between US municipal airports and non-US airports.

For US airports, the bond provisions specify what revenues are available to each bond type. In addition, the debt of most US airports has a fully amortizing profile in aggregate. For these airports the DSCR ratio is calculated as:

$$\frac{\text{Gross revenues}^5 \text{ minus operating expenses (excluding depreciation and amortization)}}{\text{Actual debt service paid in the period}^6}$$

For non-US airports with a fully amortizing debt profile, the DSCR ratio is calculated as:

$$\frac{\text{Funds from operations (FFO) + interest Expense}}{\text{Actual debt service paid in the period}}$$

For airports with a non-fully-amortizing debt profile, the DSCR ratio is adjusted such that the denominator of the above ratios is the Debt Service Annuity.

Definitions for the above ratios:

- » Funds from Operations (FFO) - defined as Cash Flow from Operations from the issuer's financial statements adding back positive and negative working capital movements. As calculated or estimated by Moody's for issuers in this sector, FFO is net of the interest expense from the income statement, whether or not such interest expense translates fully into a cash payment, with adjustments made when non-cash interest (for instance from capital appreciation bonds) is a material portion of income statement interest expense.
- » Interest Expense – as noted above, this based on the issuer's reported income statement interest expense, incorporating Moody's adjustments thereto (for example, re-classifying the interest component of operating lease rental expense). Interest expense is "gross", i.e. before any deductions of interest income, as such amounts are already included within FFO. When non-cash interest (for

⁵ For general aviation bonds, gross revenues are the revenues available for general aviation bonds; for bonds backed by general aviation revenue and Passenger Facility Charges (PFCs), gross revenues include general aviation revenues and PFCs actually applied to debt service in the reporting period (including drawdowns from PFC reserves), regardless of the period in which those PFC revenues were collected; for ConRAC facility bonds, gross revenues include all revenues pledged to those bonds.

⁶ For bonds backed by general aviation revenues and PFCs, actual debt service includes all debt service paid from gross revenues available for those bonds (i.e. debt service paid by PFCs is not deducted from debt service).

instance from capital appreciation bonds) is a material portion of income statement interest expense, it is added back (i.e. deducted from Interest Expense).

- » Debt Service Annuity refers to the annuity-type payment of interest and principal required to repay outstanding debt over the remaining life of the concession / lease, or implied perpetual concession in the cases of assets held in perpetuity. Debt Service Annuity is calculated using a standard formula that converts a present value ("PV") into an annuity payment with no residual value at maturity. In other words, we assume that: (1) annual debt service is a constant figure, (2) interest rates (the discount rate⁷ used in the formula) are constant, and (3) the full amount of debt outstanding in the year of calculation (i.e. the PV of future payments) is paid down to zero over the remaining life of the concession.⁸
- » Debt Service Annuity is calculated with the following formula: $((ST\ Debt + LT\ Debt, gross) \times Discount\ Rate) / (1 - (1/(1 + Discount\ Rate))^{remaining\ concession/lease\ life})$ ⁹

A residual rate-making framework includes a contractual obligation by the signatory airlines to cover the net costs and debt service of the airport. This reduces financial volatility so such airports need smaller margins of excess coverage. Airports that do not have these cost-based recovery mechanisms in their rates are generally considered to have a compensatory¹⁰ rate-making framework. At a given rating level, such airports will generally have higher coverage levels to offset the risk of revenue declines or cost increases that can't be immediately passed along to the airlines.

The scorecard recognizes the credit benefits of a residual rate-making framework for rates through different DSCR criteria for the A, Baa, Ba, and B rating categories. The criteria converge in the Aaa and Aa rating categories because further increases in DSCR become less meaningful when coverage is already at a strong level.

Debt per O&D Enplaned Passenger

The amount of debt outstanding in relation to enplanements is an important indicator for understanding an airport's debt burden. The grid sub-factor compares net debt¹¹ to the total number of O&D enplaned passengers because this is the most stable core source of revenue while connecting traffic is more fragile. While this ratio is viewed as the most important, we may examine other indicators for leverage that are not included in the grid, such as debt to operating revenue, debt to net revenue, or debt to total enplanements.

We generally view large airports that are strategically important to national air transportation networks as being able to accommodate higher levels of debt compared to airports that operate a regional (or local) focus. Such airports are more likely to have a rating higher than their scoring on the debt per enplaned sub-factor. We assess each airport's operating profile on a case by case basis. However, airports that score Aa on each of the sub-factors of Factor 1 Market Position are generally considered to be "National" airports while those that do not are generally considered to be Regional airports.

⁷ The discount rate used is typically either (1) the company's actual future cost of debt, if the issuer has largely fixed the interest payable on its debt over the whole life of its concession / lease, or (2) an estimation for the long-term average cost of debt for the issuer's rating category.

⁸ Where an airport company holds its assets in perpetuity, we calculate the ratio based on a constant concession life of 100 years. Where the company holds a number of concessions with different maturities, we use a weighted-average remaining concession life.

⁹ For airports that do not have a ground lease or concession, the remaining concession/lease life will be the remaining expected life of the relevant airport assets being financed.

¹⁰ The terms compensatory, hybrid, and ordinance have specific meanings and differences in the US. However, for the purposes of the methodology, any rate structure that relies primarily on demand risk and does not include a full cost recovery mechanism on the majority of the airport's cost centers is considered "Compensatory".

¹¹ Net debt is measured by total debt less any amounts held in a dedicated debt service or debt service reserve account. Other reserves are typically excluded as they are accounted for in the liquidity calculation.

FACTOR 3

Leverage and Coverage (15%)

Sub-Factor	Sub-factor Weight	Aaa	Aa	A	Baa	Ba	B	Caa
Debt Service Coverage by Net Revenues (Residual)	10%	≥ 2.5x	1.75x - 2.5x	1.1x - 1.75x	1x - 1.1x	0.9x - 1x	0.8x - 0.9x	<0.8x
Debt Service Coverage by Net Revenues (Compensatory)	10%	≥ 2.5x	1.75x - 2.5x	1.3x - 1.75x	1.1x - 1.3x	1x - 1.1x	0.8x - 1x	<0.8x
Debt in USD per O&D Enplaned Passenger (National)	5%	<\$100	\$100 - \$200	\$200 - \$400	\$400 - \$700	\$700 - \$1000	\$1000 - \$1500	≥ \$1500
Debt in USD per O&D Enplaned Passenger (Regional)	5%	< \$25	\$25 - \$50	\$50 - \$75	\$75 - \$100	\$100 - \$200	\$200 - \$400	≥ \$400

The scoring of factors 1-3 produces a preliminary grid-indicated rating. We then consider notching adjustments for factors 4-7. The grid-indicated rating results from adjusting the preliminary grid-indicated rating for these notching factors.

Factor 4: Liquidity

Airports usually hold significant amounts of cash for liquidity purposes. For example, these funds can help an airport managing unexpected financing needs while limiting costs imposed on airlines during periods of airline stress. Moody's takes into account any funds that are not restricted for other purposes and that can be used to pay debt service and/or O&M expenses (for clarity, debt service reserve accounts are not included in assessing available liquidity – they are assessed in Factor 7). These reserves can take many forms, but are usually intended to support O&M or repair and rehabilitation requirements. Discretionary reserves for most airports typically include three to six months of O&M reserves that are required by bond documents. Funds that are restricted for specific projects are not included in this calculation. Bond proceeds that are held for planned construction projects and passenger facility charge accumulations are not included in this calculation as they are funds with a designated purpose and, in the case of financings backed by Passenger Facility Charges (PFCs), a particular cash amount must be allocated to specific projects.^{12 13}

A one notch upward adjustment in the grid-indicated rating will typically be considered for airports with days cash on hand above 600 days of operating expense will be considered for a one notch higher grid score. A decrease of one notch will be considered for airports that have less than 300 days cash on hand (DCOH), or less than 200 DCOH if the airport has a residual rate making methodology.

Canadian airports usually have low levels of unrestricted cash on hand (except as a result of early refinancing of maturing debt instruments or pre-funding future capital expenditures) but maintain generally unused committed credit facilities as well as a 3 month operating and maintenance reserve (which can be cash funded or more likely met through the allocation of a committed credit facility with at least 60 days

¹² Some recent PFC application approvals have allowed for airports to "repay" themselves for liquidity previously used for PFC eligible projects. PFC balances that have been collected but not transferred to a general account may be considered as liquidity on a case-by-case basis.

¹³ In Canada, PFC reserves are also excluded from our liquidity calculation as PFCs are only collected in the United States. While they may technically be available for any use, there is no requirement to maintain any particular level, and these funds are generally quickly used by management for capital expenditures or other purposes.

remaining to maturity). A Canadian airport authority would be considered to have low liquidity if it exhibited less than the following characteristics combined with a material capital expenditure plan and maturing debt:

- » 6 months funded debt service reserve fund;
- » 3 months operating and maintenance reserve fund;
- » Sufficient committed credit facilities to cover approximately 6 months of expenses;

-1	0	+1
Residual: DCOH < 200; Other: DCOH < 300		DCOH > 600

Factor 5: Connecting Traffic

Connecting traffic is subject to the discretion of the operating decisions of airlines and has been more volatile than O&D traffic, though we note that the ability to augment O&D demand with increased connecting traffic has kept total passenger volatility at connecting hubs below that of mostly O&D airports. In addition to being at greater risk of loss, connecting passengers do not utilize key services for which airports have the most direct control of rate making autonomy such as parking, ground transportation, or airport access fees. Airports that exhibit connecting traffic between 30% and 70% of passengers will have a negative half notch and airports with greater than 70% connecting traffic will typically receive a full notch decrease in grid scoring. However, there might not be any negative adjustment if the airport receives the vast majority of its passenger revenues in the form of an airport departure fee and the airport's connecting traffic is well protected from competition.

-1	-0.5	0
O&D Traffic \leq 30%	O&D Traffic between 30% and 70%	O&D Traffic \geq 70%

Factor 6: Potential for Increased Leverage

Airports as an asset class require nearly continuous capital reinvestment throughout their operations. The baseline assumption in this methodology is that airports will always be pursuing capital projects in some form that has been managed in recent periods. A negative notching adjustment of one half notch may be applied if an airport has large capital plans and recent capital improvement projects of a similar scale have achieved cost and schedule targets, the projects are procured under an appropriate cost risk mitigation strategy, or the project is moderately sized. The negative adjustment is likely to be one notch if the project is substantially larger than anything current airport management has managed or the project is subject to cost escalation through contracting methods that do not provide price certainty. A one notch negative grid adjustment might also be applied if existing airport facilities are near the end of their useful life or functionally obsolete, or are approaching their maximum capacity, and will thus require significant capital improvements over the life of the rated debt.

-1	-0.5	0
Facilities are nearing functional obsolescence or construction of projects planned for the near-term or currently underway are beyond the scope of what	Facilities may require moderate capital investment; current projects are procured under appropriate risk mitigation strategy or entity has recent	Facilities are in good condition, any construction is maintenance in nature and to be funded by third party sources

the entity has recently managed and the entity is exposed to cost overruns.	experience in managing similarly sized capital projects	or internal cash flow
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Factor 7: Debt Service Reserves

Available financial reserves are an important credit consideration in our airport methodology, partly due to the volatile nature of the airline industry. Reserves provide a cushion against periods of financial stress. A debt service reserve funded to 12 months (or the standard 3-prong test¹⁴ contained in debt documents for most issuers in the United States) with cash or surety rated A or higher is typically considered to be standard in this sector. A negative adjustment to the grid-indicated rating is typical when debt service reserves have lower requirements. A negative adjustment is also likely when debt service reserves that are not fully funded or are supported by liquidity facilities that are rated below A. Debt service reserves funded with a combination of cash and/or sureties rated higher than A and are greater than 18 months may receive one half notch uplift in the grid-indicated rating. For Canadian airports, a six-month cash funded debt service reserve is considered to be standard, given the authorities' rights to adjust rates and fees within very short periods of time, and there is typically no notching adjustment for such issuers..

-1	-0.5	0	+0.5
Debt service reserves less than 6 months or more than 50% of reserve provided by surety rated lower than A	DSR between 6 and 12 months or 12 months or DSR more than 10% funded by surety rated lower than A	12 month DSR (or standard US 3 prong test)	DSR greater than 18 months of debt service inclusive of sureties with A rating or higher

Assumptions and Limitations, and Rating Considerations That Are Not Covered in the Grid

The grid in this rating methodology represents a decision to favor simplicity that enhances transparency and to avoid greater complexity that would enable the grid to map more closely to actual ratings. Accordingly, the seven rating factors in the grid do not constitute an exhaustive treatment of all of the considerations that are important for ratings of issuers in this sector. In addition, our ratings incorporate expectations for future performance, while the financial information that is used to illustrate the mapping in the grid in this document is mainly historical. In some cases, our expectations for future performance may be informed by confidential information that we can't disclose. In other cases, we estimate future results based upon past performance, industry trends, competitor actions or other factors. In either case, predicting the future is subject to the risk of substantial inaccuracy.

Assumptions that may cause our forward-looking expectations to be incorrect include unanticipated changes in any of the following factors: the macroeconomic environment and general financial market conditions, industry competition, disruptive technology, regulatory and legal actions.

Key rating assumptions that apply in this sector include our view that sovereign credit risk is strongly correlated with that of other domestic issuers, that legal priority of claim affects average recovery on different classes of debt sufficiently to generally warrant differences in ratings for different debt classes of the same issuer, and the assumption that access to liquidity is a strong driver of credit risk.

¹⁴ The standard 3-prong test for US issuers reflect an IRS requirement that debt service reserve funds be sized at the lesser of 1) maximum annual debt service, 2) 125% of the average annual debt service over the course of the bonds, or 3) 10% of par issuance price. In most cases, the debt service reserve fund approximates 12 months of debt service.

In choosing metrics for this rating methodology grid, we did not explicitly include certain important factors that are common to all issuers in any industry such as the quality and experience of management, assessments of corporate governance and the quality of financial reporting and information disclosure. Therefore, ranking these factors by rating category in a grid would in some cases suggest too much precision in the relative ranking of particular issuers against all other issuers that are rated in various industry sectors.

Ratings may include additional factors that are difficult to quantify or that have a meaningful effect in differentiating credit quality only in some cases, but not all. Such factors include financial controls, exposure to uncertain licensing regimes and possible government interference in some countries. Regulatory, litigation, liquidity, technology and reputational risk as well as changes to consumer and business spending patterns, competitor strategies and macroeconomic trends also affect ratings. While these are important considerations, it is not possible to precisely express these in the rating methodology grid without making the grid excessively complex and significantly less transparent. Ratings may also reflect circumstances in which the weighting of a particular factor will be substantially different from the weighting suggested by the grid.

Other Rating Considerations

Ratings reflect a number of additional considerations. These include but are not limited to: our assessment of the quality of management, corporate governance, financial controls, liquidity management, event risk, and governmental or institutional support.

Management Strategy

The quality of management is an important factor supporting an issuer's credit strength. Assessing the execution of business plans over time can be helpful in assessing management's business strategies, policies, and philosophies and in evaluating management performance relative to performance of competitors and our projections. A record of consistency provides Moody's with insight into management's likely future performance in stressed situations and can be an indicator of management's tendency to depart significantly from its stated plans and guidelines.

Debt Structure

The vast majority of issuers rated under this methodology have fixed interest rate debt that does not include put features back to the issuers. Variable rate debt that has full rate recovery under the airport's airline use and lease agreement may not place negative pressure on the rating. Variable rate debt that does not have rate recovery or debt that contains provisions that allow debt holders to put the bonds back to the issuer and therefore weaken liquidity or require market access for refunding that typically places downward pressure on the rating. The adverse negative credit effects of variable and puttable debt are evaluated in the context of the overall profile and circumstances for each such issuer.

Additionally, with the exception of a few issuers with bullet maturities, most airports rated under this methodology have flat or descending debt service profiles¹⁵. An issuer with a backloaded or continually increasing debt service profile is more likely to be rated below its grid-indicated rating as the airport would be further dependent on annual growth than the other issuers rated in this methodology.

¹⁵ Many airports capitalize interest during construction projects given prohibitions on charging for projects before they are in service. This increase in debt service is expected in the base case and would not be considered to be escalating or back-loaded debt service.

Financial Controls

We rely on the accuracy of audited financial statements to assign and monitor ratings in this sector. The quality of financial statements may be influenced by internal controls, including centralized operations and the proper tone at the top and consistency in accounting policies and procedures. Auditors' comments in financial reports and unusual financial statement restatements or delays in regulatory filings may indicate weaknesses in internal controls.

Status of Airline Use Agreements

The term of the airline use and lease agreements vary by airport. Agreements at large connecting hub airports tend to be on the longer end of the scale while agreements at smaller O&D airports tend to have shorter durations. Long term agreements may apply upward pressure on the rating as it provides both a show of commitment from the partner airline, assuming that the airline has a strong credit profile, and provides a framework for capital planning in future periods. In some instances, failure to reach any airline use and lease agreement may indicate a fundamental disagreement between the airport's owner with regard to planned capital improvement projects and airlines projected needs for the facility. The risk to bondholders is that projects are pursued on a speculative basis and costs cannot be recovered from demand. In instances where there has been a failure to reach agreement in the face of a large capital improvement project, the final rating may be below the grid indicated rating.

Maturity of the Air Service Market

As mentioned above, the grid has been calibrated to mature air service markets in highly developed countries. Issuers in new build facilities or in jurisdictions where air service is in an evolutionary period may be rated below the scorecard.

Transparency and Predictability of Government Policy

The scorecard grid is calibrated based on a sovereign environment where the government is rated Aaa, and where the broad legal and judicial environment is extremely stable and predictable. Where the environment is less stable and predictable, the issuer's rating is more likely to be substantially below the grid indicated rating. Such an environment would typically exist where the score for the score for Institutional Framework (Factor 2) in Moody's [Sovereign Bond Ratings](#) methodology (September, 2013) is well below the Very High level.

Lack of Rate-Setting Ability

The grid has been calibrated to airports with unregulated rate setting. Issuers rated under this methodology that face third party regulation (which is more typical of privately managed airports) are likely to have ratings that are significantly below the grid indicated rating.

Event Risk

We also recognize the possibility that an unexpected event could cause a sudden and sharp decline in an issuer's fundamental creditworthiness. Typical special events include mergers and acquisitions, asset sales, spin-offs, capital restructuring programs, litigation and shareholder distributions. For airports, event risks could also include natural disasters or terrorism that causes a prolonged decrease in air travel.

Conclusion: Summary of the Grid-Indicated Rating Outcomes

The illustrative mapping examples result in the following comparison of grid-indicated outcomes to ratings (see Appendix B for details):

- » 55 issuers map to their rating;
- » 38 issuers have a grid-indicated rating that is one notch from their rating;
- » 5 issuers have a grid-indicated rating that is two notches from their rating;
- » No issuer has a grid-indicated rating more than two notches from its rating.

Appendix A: Publicly Managed Airport Grid

Sub-factor	Weight	Aaa	Aa	A	Baa	Ba	B	Caa
Factor 1: Market Position (50%)								
Size of Service Area (millions)	20%	≥ 5	1.5 – 5	0.75 - 1.5	0.25 - 0.75	0.1 - 0.25	0.05 - 0.1	< 0.05
Economic Strength and Diversity of Service Area	15%	Serves a large international gateway city with a highly diversified economy with solid historical and projected growth	Serves a large city or region with a strong and well diversified economic base with solid growth	Serves a city or region with a developed and reasonably diversified economic base	Serves a city or region with a developed and reasonably diversified economic base, but subject to some industry concentration	Serves a city or region that is small or has an evolving economy currently underperforming relative to the country's average	Serves a city or region with a deteriorating or economic base and very little diversification	Serves a city or region with a poor economic base with difficult recovery prospects and limited diversification
Competition for Travel	15%	Has virtual monopoly with no reasonable alternatives; or Faces competition for connecting traffic from other hub airports but has substantial cost advantages	Has dominant position for providing origin and destination air travel in its geographical area; or Faces competition for connecting traffic from other hub airports but is price competitive	Limited competition with similar or weaker airports across a broad service area; demand impacted by robust rail travel; or Faces competition for connecting traffic from other hub airports and is high cost or faces other limiting factors	Substantial competition with similar airports nearby or stronger airports in reasonable driving distance; or at a cost disadvantage to competing airports.	Has a minority of air travel in its market area and serves a particular niche	Has a minority of air travel in its market area and does not occupy a substantial market niche	Offers no substantial competitive air service
Factor 2: Service Offering (35%)								
Total Enplanements (millions)	10%	≥ 10	5 - 10	3 - 5	1.25 - 3	0.4 - 1.25	< 0.4	No scheduled enplanements or no available historical data

Sub-factor	Weight	Aaa	Aa	A	Baa	Ba	B	Caa
Stability of Traffic Performance	10%	Track record of strong enplanement growth with low volatility (typically with a standard deviation < 4%); strong growth expected	Track record of traffic growth with moderate volatility (typically with a standard deviation < 5%); expectation of moderate growth	Stable to slightly positive traffic performance with moderate volatility (typically with standard deviation < 7%); expectation of moderate growth	Stable to slightly declining track record with high volatility (typically with standard deviation > 7%); expectation of stable traffic levels	Track record of declining traffic with high volatility (typically with standard deviation > 7%), but traffic expected to stabilize	Track record of declining traffic with high volatility and expectation of continued declines	No historical data or Start-up airport or Data of questionable quality
Stability of Costs	10%	Cost to airlines are expected to fall and recent growth has been below CPI	Cost to airlines are expected to remain flat or grow below CPI	Cost to airlines expected to grow at or very slightly above CPI	Cost to airlines expected to grow well above CPI, but cost levels will remain below peers	Cost to airlines expected to grow well above CPI, but cost levels will be competitive with peers	Costs to airlines expected to grow well above CPI, and cost levels will be above peers	Costs have been significantly higher than peers and increases are extremely large and rapid
Carrier Base (Primary Carrier as Percentage of Total Enplanements)	5%	<20%	20% - 30%	30% - 45%	45% - 80%	80% - 95%	95% - 100%	100%
Factor 3: Leverage and Coverage (15%)								
Debt Service Coverage by Net Revenues (Residual)	10%	≥ 2.5x	1.75x - 2.5x	1.1x - 1.75x	1x – 1.1x	0.9x – 1x	0.8x – 0.9x	<0.8x
Debt Service Coverage by Net Revenues (Compensatory)	10%	≥ 2.5x	1.75x - 2.5x	1.3x – 1.75x	1.1x – 1.3x	1x – 1.1x	0.8x – 1x	<0.8x
Debt in USD per O&D Enplaned Passenger (National)	5%	<\$100	\$100 - \$200	\$200 - \$400	\$400 - \$700	\$700 - \$1000	\$1000 - \$1500	≥ \$1500
Debt in USD per O&D Enplaned Passenger (Regional)	5%	< \$25	\$25 - \$50	\$50 - \$75	\$75 - \$100	\$100 - \$200	\$200 - \$400	≥ \$400
Factor 1-3: Preliminary Grid Indicated Rating								

Factor 4: Liquidity

-1	0	+1
Residual: DCOH < 200; Other: DCOH < 300		DCOH > 600

Factor 5: Connecting Traffic

-1	-0.5	0
O&D Traffic ≤ 30%	O&D Traffic between 30% and 70%	O&D Traffic ≥ 70%

Factor 6: Potential for Increased Leverage

-1	-0.5	0
Facilities are nearing functional obsolescence or construction of projects planned for the near-term or currently underway are beyond the scope of what the entity has recently managed and the entity is exposed to cost overruns.	Facilities may require moderate capital investment; current projects are procured under appropriate risk mitigation strategy or entity has recent experience in managing similarly sized capital projects	Facilities are in good condition, any construction is maintenance in nature and to be funded by third party sources or internal cash flow

Factor 7: Debt Service Reserves

-1	-0.5	0	+0.5
Debt service reserves less than 6 months or more than 50% of reserve provided by surety rated lower than A	DSR between 6 and 12 months or 12 months or DSR more than 10% funded by surety rated lower than A	12 month DSR (or standard US 3 prong test)	DSR greater than 18 months of debt service inclusive of sureties with A rating or higher

Grid Indicated Rating

Appendix B: Publicly Managed Airport Grid Outcomes

In the table below, positive or negative "outliers" for a given sub-factor are defined as issuers whose grid sub-factor score is at least two broad rating categories higher or lower than an issuers' rating (e.g. a B-rated issuer whose rating on a specific sub-factor is in the Baa-rating category is flagged as a positive outlier for that sub-factor). Green is used to denote a positive outlier, whose grid-indicated performance for a sub-factor is two or more broad rating categories higher than Moody's rating. Red is used to denote a negative outlier, whose grid-indicated performance for a sub-factor is two or more broad rating categories lower than Moody's rating.

Particularly among the rated entities in the United States, the capital structure may contain multiple liens with varied sources of revenue secured to each. In most cases, we consider the lien with the significant majority of debt to be the reference rating.

	Issuer	Reference Rating	Outlook	Grid-Indicated Rating	Size of Service Area	Economic Strength	Competition	Enplanements	Traffic Stability	Cost Stability	Carrier Base	DSCR	Debt/O&D	Liquidity	Connecting Traffic	Increased Leverage	DSR
1	A.B. Won Guam International Airport Authority	Baa2	Stable	Baa1	Ba	B	Aaa	Baa	A	Baa	Baa	A	Aa	0.0	0.0	0.0	0.0
2	Aeroports De Montreal	A1	Stable	A1	Aa	Aa	A	Aa	Aa	A	Baa	Aa	A	0.0	0.0	-0.5	0.0
3	Alaska (State Of) Airport Enterprise	A1	Stable	A2	Baa	Aa	Aaa	A	Aa	Aa	Baa	Ba	Ba	0.0	0.0	0.0	-0.5
4	Albany County Airport Authority, NY	A3	Stable	A2	A	A	A	Ba	A	Aa	A	Baa	Baa	1.0	0.0	0.0	0.0
5	Albuquerque (City Of) NM Airport Enterprise	A1	Stable	A1	A	A	Aa	Baa	A	A	Baa	A	Aa	1.0	0.0	0.0	0.0
6	Allegheny County Airport Authority, PA	A3	Stable	A2	Aa	Baa	A	A	Baa	A	Aa	A	A	0.0	0.0	0.0	0.0
7	Atlanta (City Of) GA Airport Enterprise	Aa3	Stable	Aa2	Aaa	Aa	Aa	Aaa	Aaa	Aa	Ba	A	Aa	1.0	-0.5	-0.5	0.0
8	Augusta (City Of) GA Airport Enterprise	Baa2	Stable	Baa2	Baa	Baa	Ba	B	Aa	A	Baa	Aaa	Aa	-1.0	0.0	0.0	0.0
9	Austin (City Of) TX Airport Enterprise	A1	Stable	A1	Aa	Aa	A	A	Aaa	Baa	A	A	A	0.0	0.0	0.0	0.0
10	Billings (City Of) MT Airport Enterprise	Baa2	Stable	Baa1	Ba	Baa	A	B	Baa	A	A	Aa	Aa	0.0	0.0	0.0	0.0
11	Birmingham Airport Authority, AL	A3	Negative	Baa1	A	Baa	A	Baa	A	A	A	A	Ba	0.0	0.0	0.0	-0.5
12	Bishop International Airport Authority, MI Airport Enterprise	Baa3	Stable	Baa3	Baa	Ba	Ba	Ba	A	A	A	B	Aa	0.0	0.0	0.0	0.0
13	Boise City (City Of) ID Airport Enterprise	A1	Stable	A2	Baa	A	Aaa	Baa	Baa	A	Aa	Aa	Aa	0.0	0.0	0.0	0.0
14	Broward (County Of) FL Airport Enterprise	A1	Stable	A1	Aaa	Aa	Baa	Aaa	Aa	Baa	Aa	Baa	Aa	0.0	0.0	-0.5	0.0
15	Burbank-Glendale-Pasadena Airport Authority, CA	A2	Stable	A1	Aaa	Aaa	Ba	Baa	Baa	A	Baa	A	A	1.0	0.0	0.0	0.0
16	Burlington (City Of) VT Airport Enterprise	Baa3	Stable	Baa3	Ba	Ba	A	Ba	A	Ba	A	A	A	-1.0	0.0	0.0	0.0
17	Calgary Airport Authority (The)	A1	Stable	A2	A	Aa	Aa	Aa	Aa	A	Baa	Aa	Baa	0.0	-0.5	0.0	-1.0
18	Capital Region Airport Commission, VA	A2	Stable	A2	A	Aa	Baa	Baa	A	Aa	Aa	Aa	A	0.0	0.0	0.0	0.0
19	Charleston County Airport District, SC	A1	Stable	A2	Baa	A	A	Baa	Aa	Baa	A	Aaa	Ba	1.0	0.0	-0.5	0.0
20	Charlotte (City Of) NC Airport Enterprise	Aa3	Stable	Aa3	Aa	Aa	Aa	Aaa	Aaa	A	Ba	Aa	Aa	1.0	-1.0	-0.5	0.0
21	Chicago (City Of) IL Midway Airport Enterprise	A3	Stable	A1	Aaa	Aaa	Baa	Aaa	Aa	A	Ba	B	Aa	0.0	-0.5	0.0	0.0
22	Chicago (City Of) IL O'Hare Airport Enterprise	A2	Stable	A2	Aaa	Aaa	Aa	Aaa	A	Ba	A	Baa	A	0.0	-0.5	-1.0	0.0

¹⁶ Maryland Transportation Authority has issued rated bonds backed by specified revenue streams (e.g. Passenger Facility Charges or PFC bonds) but does not have any rating for general aviation revenue bonds. An explanation of our rating approach for bonds, such as PFC bonds, backed solely by an airport departure fee is provided in Appendix C. Reference Rating for US airports in the general airport revenue bond rating (GARb).

	Issuer	Reference Rating	Outlook	Grid-Indicated Rating	Size of Service Area	Economic Strength	Competition	Enplanements	Traffic Stability	Cost Stability	Carrier Base	DSCR	Debt/O&D	Liquidity	Connecting Traffic	Increased Leverage	DSR
23	Clark (County Of) NV Airport Enterprise	A1	Stable	A1	Aa	A	Aaa	Aaa	A	A	A	A	A	0.0	0.0	0.0	-0.5
24	Cleveland (City Of) OH Airport Enterprise	Baa1	Stable	Baa1	Aa	Baa	A	A	Baa	Ba	A	Baa	B	0.0	0.0	0.0	0.0
25	Colorado Springs (City Of) CO Airport Enterprise	Baa1	Stable	Baa1	Baa	Baa	Ba	Ba	Baa	A	A	A	Aa	1.0	0.0	0.0	0.0
26	Columbus Regional Airport Authority, OH	A1	Stable	A1	Aa	A	Baa	A	A	A	A	Aaa	Aaa	0.0	0.0	0.0	0.0
27	Dallas-Fort Worth Int'l Airport Board, TX	A2	Positive	A1	Aaa	Aaa	Aa	Aaa	Aa	Ba	Ba	A	Baa	1.0	-0.5	-1.0	0.0
28	Dallas (City Of) TX Airport Enterprise	A1	Stable	Aa3	Aaa	Aaa	Baa	Aa	Aaa	A	Ba	Baa	Aa	0.0	0.0	0.0	0.0
29	Denver (City & County Of) CO Airport Enterprise	A1	Stable	Aa3	Aa	Aa	A	Aaa	Aaa	A	A	A	A	1.0	-0.5	-1.0	0.0
30	Des Moines (City Of) IA Airport Enterprise	A2	Stable	A2	A	A	A	Ba	A	Aa	Aa	Aaa	Aa	0.0	0.0	0.0	0.0
31	Eagle County Air Terminal Corporation, CO	Baa2	Negative	Baa3	B	Ba	Ba	B	Ba	Aa	Baa	A	A	1.0	0.0	0.0	0.0
32	Edmonton Regional Airports Authority	A1	Stable	A2	A	Aa	A	A	A	A	A	Aa	B	0.0	0.0	0.0	0.0
33	El Paso (City Of) TX Airport Enterprise	A2	Stable	A3	A	Baa	Aa	Baa	A	Baa	Baa	A	Aaa	0.0	0.0	0.0	0.0
34	Fresno (City Of) CA Airport Enterprise	Baa1	Stable	Baa1	A	Baa	Baa	Ba	Aa	A	Aa	Aa	A	-1.0	0.0	0.0	0.0
35	Gallatin Airport Authority	A3	Stable	A2	Ba	Baa	A	Ba	Aa	Aaa	A	Aaa	Aa	1.0	0.0	0.0	0.0
36	Grand Junction Regional Airport Authority, CO	Baa2	Stable	Baa2	Ba	Ba	A	B	Aa	A	A	A	A	0.0	0.0	0.0	0.0
37	Greater Orlando Aviation Authority, FL	Aa3	Stable	Aa3	Aa	A	Aa	Aaa	Aa	Baa	Aa	A	Aaa	1.0	0.0	-1.0	0.0
38	Greater Toronto Airports Authority	A1	Stable	Aa3	Aaa	Aaa	Aa	Aaa	Aa	Aaa	Baa	Aa	Baa	0.0	-0.5	-0.5	0.0
39	Greenville-Spartanburg Airport District, SC	A2	Stable	A1	A	A	Baa	Ba	A	Aaa	A	Aaa	Aaa	1.0	0.0	0.0	0.0
40	Hawaii (State Of) Airport Enterprise	A1	Stable	A1	A	A	Aaa	Aaa	A	A	Baa	Baa	Aa	1.0	0.0	-0.5	0.0
41	Hillsborough County Aviation Authority, FL	Aa3	Stable	A1	Aa	A	Baa	Aa	Aa	Aa	A	A	A	0.0	0.0	-0.5	0.0
42	Horry (County Of) SC Airport Enterprise	A3	Stable	A3	Baa	Ba	Baa	Ba	A	A	Baa	Aaa	A	1.0	0.0	0.0	0.0
43	Houston (City Of) TX Airport Enterprise	A1	Stable	A1	Aaa	Aaa	Aa	Aaa	Aa	Ba	Baa	A	Aa	1.0	-0.5	-1.0	-0.5
44	Huntsville Madison County Airport Authority, AL	A3	Stable	A3	Baa	Baa	Baa	Ba	A	A	A	Aa	Ba	1.0	0.0	0.0	0.0
45	Indianapolis Airport Authority, IN	A1	Stable	A1	Aa	Aa	Aa	A	A	A	Aa	A	B	0.0	0.0	0.0	0.0
46	Jackson (County Of) OR Airport Enterprise	Baa1	Stable	A3	Ba	Baa	A	B	Aa	Aa	Baa	Aaa	A	1.0	0.0	0.0	0.0
47	Jackson Municipal Airport Authority, MS	Baa1	Stable	Baa1	Baa	Baa	A	Ba	A	Baa	A	A	A	0.0	0.0	0.0	0.0

	Issuer	Reference Rating	Outlook	Grid-Indicated Rating	Size of Service Area	Economic Strength	Competition	Enplanements	Traffic Stability	Cost Stability	Carrier Base	DSCR	Debt/O&D	Liquidity	Connecting Traffic	Increased Leverage	DSR
48	Jacksonville Aviation Authority, FL	A2	Stable	A2	Aa	A	A	Baa	A	Baa	A	Aaa	A	0.0	0.0	0.0	-0.5
49	Kansas City (City Of) MO Airport Enterprise	A2	Positive	A2	Aa	A	Aa	A	A	Ba	A	Aaa	Aa	0.0	0.0	-1.0	0.0
50	Kenton County Airport Board, KY	A3	Stable	A3	Aa	A	Baa	Baa	Ba	Aa	Baa	A	Aaa	-1.0	0.0	0.0	0.0
51	Lee (County Of) FL Airport Enterprise	A2	Stable	A1	A	A	A	A	A	A	Aa	Ba	A	1.0	0.0	0.0	0.0
52	Little Rock (City Of) AR Airport Enterprise	A2	Stable	A2	A	Baa	A	Ba	A	Aa	Aa	Aaa	Aaa	0.0	0.0	0.0	0.0
53	Long Beach (City Of) CA Airport Enterprise	A3	Stable	A2	Aaa	Aaa	B	Baa	Aa	A	Ba	Baa	A	0.0	0.0	0.0	0.0
54	Los Angeles International Airport Enterprise, CA	Aa3	Positive	Aa2	Aaa	Aaa	Aa	Aaa	Aa	Ba	Aaa	Aa	Aa	0.0	0.0	-0.5	0.0
55	Los Angeles Dept.Of Apts-Ontario Int'l Apt Ent, CA	Baa1	Stable	Baa1	Aaa	Ba	Ba	Baa	Ba	Ba	Baa	Baa	Aa	1.0	0.0	0.0	-0.5
56	Manchester (City Of) NH Airport Enterprise	Baa1	Stable	Baa3	Baa	A	Baa	Ba	Ba	Ba	Baa	Ba	Ba	0.0	0.0	0.0	0.0
57	Massachusetts Port Authority	Aa2	Stable	Aa2	Aaa	Aaa	Aa	Aaa	A	A	Aa	Aa	Aaa	0.0	0.0	0.0	0.0
58	Memphis-Shelby County Airport Authority, TN	A3	Stable	Baa1	A	Baa	A	Baa	Ba	A	Baa	A	Ba	0.0	0.0	0.0	0.0
59	Metropolitan Washington Airports Auth. DC	A1	Stable	A1	Aaa	Aaa	A	Aaa	A	A	A	Baa	A	0.0	0.0	-0.5	0.0
60	Metropolitan Knoxville Airport Authority, TN	Baa1	Stable	Baa1	A	Baa	Baa	Ba	Baa	A	A	Aaa	Baa	1.0	0.0	-0.5	-1.0
61	Metropolitan Nashville Airport Authority, TN	A1	Stable	Aa3	Aa	Aa	Aa	Aa	Aa	Aa	Baa	A	Aaa	0.0	0.0	0.0	0.0
62	Miami-Dade (County Of) FL Airport Enterprise	A2	Stable	A2	Aaa	Aaa	A	Aaa	Aaa	Ba	Baa	A	Baa	0.0	-0.5	-0.5	-0.5
63	Milwaukee (County Of) WI Airport Enterprise	A2	Stable	A2	Aa	A	Baa	A	A	A	Baa	Aa	Baa	0.0	0.0	0.0	0.0
64	New Orleans Aviation Board, LA	A3	Stable	A2	A	Baa	Aa	A	A	Baa	A	Aa	A	1.0	0.0	-1.0	0.0
65	Niagara Frontier Transportation Authority, NY	Baa1	Stable	Baa1	Aa	Baa	A	Baa	Aa	A	A	A	Aa	-1.0	0.0	0.0	-1.0
66	Norfolk Airport Authority, VA	A3	Stable	A2	Aa	Baa	Baa	Baa	A	A	Aa	A	Aa	0.0	0.0	0.0	0.0
67	Oklahoma City Airport Trust, OK	A2	Stable	A2	A	A	A	Baa	Aa	A	A	Aaa	A	1.0	0.0	0.0	-1.0
68	Omaha Airport Authority, NE	Aa3	Stable	Aa3	A	A	A	Baa	Aa	Aaa	A	Aaa	Aaa	1.0	0.0	0.0	0.0
69	Orange (County Of) CA Airport Enterprise	Aa3	Stable	Aa3	Aa	Aaa	Baa	A	Aa	Baa	A	Aaa	Aa	0.0	0.0	0.0	0.0
70	Ottawa Macdonald-Cartier Int'l Airport Auth.	Aa3	Stable	Aa3	A	A	A	Baa	Aaa	Aa	Baa	Aa	Ba	0.0	0.0	0.0	0.5
71	Palm Beach (County Of) FL Airport Enterprise	A2	Stable	A2	A	A	Baa	Baa	A	Aaa	Aa	A	Aaa	0.0	0.0	0.0	-0.5
72	Pensacola (City Of) FL Airport Enterprise	Baa1	Stable	A3	Baa	A	A	Ba	A	A	A	Aaa	Baa	0.0	0.0	0.0	0.0

	Issuer	Reference Rating	Outlook	Grid-Indicated Rating	Size of Service Area	Economic Strength	Competition	Enplanements	Traffic Stability	Cost Stability	Carrier Base	DSCR	Debt/O&D	Liquidity	Connecting Traffic	Increased Leverage	DSR
73	Philadelphia (City Of) PA Airport Enterprise	A2	Stable	Baa1	Aaa	Aa	A	Aaa	A	Ba	Baa	Ba	Aa	-1.0	-0.5	-1.0	0.0
74	Phoenix (City Of) AZ Airport Enterprise	A1	Stable	A1	Aa	Aa	Aa	Aaa	Aa	A	Baa	A	Aaa	0.0	-0.5	-0.5	0.0
75	Piedmont Triad Airport Authority, NC	A3	Stable	A3	Aa	Baa	Ba	Ba	Ba	Aa	A	A	Ba	1.0	0.0	0.0	0.0
76	Port Authority Of New York And New Jersey	Aa3	Stable	Aa3	Aaa	Aaa	Aaa	Aaa	Aaa	Ba	Aa	Aa	Baa	1.0	-0.5	-1.0	-1.0
77	Port Of Oakland, CA	A2	Stable	A2	Aaa	Aa	Baa	A	Ba	A	Baa	A	B	0.0	0.0	0.0	0.0
78	Port Of Seattle, WA	A1	Stable	Aa3	Aa	Aa	Aa	Aaa	Aaa	Baa	Baa	A	A	1.0	0.0	-1.0	-0.5
79	Portland (City Of) ME Airport Enterprise	Baa1	Stable	Baa1	Baa	Baa	Baa	Ba	Aa	A	Aa	Baa	Ba	0.0	0.0	0.0	0.0
80	Raleigh-Durham Airport Authority, NC	Aa3	Stable	Aa3	Aa	Aa	A	A	Aa	A	Aa	A	Ba	1.0	0.0	0.0	0.0
81	Rapid City (City Of) SD Airport Enterprise	Baa3	Stable	Baa2	Ba	Baa	Aaa	B	Baa	A	Baa	Aa	Aa	-1.0	0.0	0.0	0.0
82	Redmond (City Of) OR Airport Enterprise	Baa3	Stable	Baa3	Ba	Ba	Aa	B	Baa	A	Baa	Aaa	Baa	-1.0	0.0	0.0	0.0
83	Rhode Island Airport Corporation	A3	Negative	A3	Aa	Baa	Baa	Baa	A	A	Baa	Baa	Ba	0.0	0.0	0.0	0.0
84	Richland-Lexington Airport District, SC	Baa1	Stable	Baa1	A	A	Baa	Ba	Ba	A	A	Aa	Ba	0.0	0.0	0.0	0.0
85	Sacramento (County Of) CA Airport Enterprise	A3	Stable	A3	Aa	A	Baa	A	A	A	Baa	Baa	B	0.0	0.0	0.0	0.0
86	San Antonio (City Of) TX Airport Enterprise	A1	Stable	A1	Aa	A	Baa	A	A	Aa	A	A	Baa	1.0	0.0	0.0	0.0
87	San Diego County Regional Airport Authority, CA	A2	Stable	Aa3	Aa	Aa	A	Aa	Aa	Ba	A	Aaa	Aa	1.0	0.0	0.0	0.0
88	San Francisco Airport Commission, CA	A1	Stable	A1	Aaa	Aaa	A	Aaa	Aaa	Ba	Baa	Baa	A	0.0	0.0	-0.5	0.0
89	San Jose (City Of) CA Airport Enterprise	A2	Stable	A3	Aaa	Aa	Baa	A	A	A	Baa	B	B	0.0	0.0	0.0	0.0
90	Savannah (City Of) GA Airport Enterprise	A1	Stable	A2	Baa	Baa	A	Ba	Baa	Aa	Baa	Aaa	Aaa	1.0	0.0	0.0	0.0
91	Spokane (County Of) WA Airport Enterprise	A2	Stable	A3	Baa	Ba	Aa	Baa	A	Aa	A	Aa	Aaa	0.0	0.0	0.0	0.0
92	St. John's International Airport Authority	A1	Stable	A3	Baa	A	Aaa	Ba	Aa	A	Baa	Aaa	Ba	0.0	0.0	-0.5	0.0
93	St. Louis (City Of) MO Airport Enterprise	A3	Stable	A3	Aa	Baa	A	Aa	A	A	Baa	Ba	Ba	0.0	0.0	0.0	0.0
94	Susquehanna Area Regional Airport Authority, PA	Baa3	Stable	Baa3	A	Baa	Baa	Ba	Baa	A	A	Baa	B	-1.0	0.0	0.0	0.0
95	Tucson Airport Authority, Incorporated, AZ	A2	Stable	A3	A	Baa	Baa	Baa	Baa	Aa	A	Aaa	Aa	1.0	0.0	0.0	-1.0
96	Tulsa Airports Improvement Trust, OK	Baa1	Stable	Baa1	A	Baa	Baa	Baa	Aa	A	A	Baa	Ba	0.0	0.0	0.0	0.0
97	Wayne County Airport Authority, MI	A2	Stable	A3	Aaa	Baa	Aa	Aaa	Aa	A	Baa	Baa	A	-1.0	-0.5	-0.5	0.0

		Reference Rating	Outlook	Grid- Indicated Rating	Size of Service Area	Economic Strength	Competition	Enplanements	Traffic Stability	Cost Stability	Carrier Base	DSCR	Debt/O&D	Liquidity	Connecting Traffic	Increased Leverage	DSR
98	Winnipeg Airports Authority Inc.	A2	Stable	A3	A	A	Aaa	Baa	A	A	A	A	B	0.0	0.0	0.0	0.0

Outlier Discussion

The following comments provide insights on some of the outliers for each sub-factor in the grid.

Size of Service Area

Ontario International Airport Enterprise is a negative outlier reflecting the severe competition it faces from Los Angeles International Airport, the relatively weaker socio-economic base of its immediate service area, and a declining population trend.

Economic Strength and Diversity of Service Area

Chicago-O'Hare Airport Enterprise, Dallas-Fort Worth International Airport Board, Miami-Dade Airport Enterprise and Metropolitan Washington Airports Authority are all positive outliers. For all three of these issuers, the higher score on this sub-factor is offset by weaker scores on other sub-factors due to the intensity of competition and these issuers' elevated leverage.

Competition for Travel

A.B. Won Guam International Airport Authority is a positive outlier. While the airport faces no competition for travel, travel demand is based primarily on leisure tourism traffic from international destinations, adding increased volatility from exchange rate fluctuations. The island is additionally subject to typhoons, which can result in facility damage or dampen demand for travel.

Total Enplanements

There are a significant number of outliers for total enplanements. Omaha Airport Authority is a notable negative outlier, however the authority's high coverage, low leverage, and ample liquidity compensate for the low usage levels.

Stability of Traffic Performance

Memphis-Shelby County Airport Authority is a negative outlier, however the airport's steady financial metrics provided by the airline agreement and significant presence of cargo carrier FedEx provide strengths that help to balance the risk of severe enplanement losses.

Stability of Costs

Los Angeles (CA) International Airport is a negative outlier. Weakness in the scoring for this sub-factor is balanced by the diversity of air service at the airport, a powerful market position, and strong debt service coverage levels.

Carrier Base

Charlotte (NC) Airport Enterprise is a negative outlier. Weakness in the scoring for this sub-factor is balanced by a low leverage profile, extremely competitive costs, and very strong liquidity.

Debt Service Coverage by Net Revenues

Metropolitan Knoxville Airport Authority is a positive outlier. A strong score for this sub-factor is balanced by the small service area 100% variable rate debt structure.

Debt per O&D Enplanement

The Port of Oakland (CA) is a negative outlier. Weakness in the scoring for this sub-factor is balanced in our overall credit assessment by additional revenues that are provided by the issuer's port facilities and commercial real estate entities.

Appendix C: Ratings Considerations for Bonds Backed Solely By Airport Departure Fees with No Rate Setting Ability

In this appendix, we discuss the key ratings considerations for bonds backed solely by an airport departure fee for which there is no independent rate raising ability. Currently, there are only four obligors of such bonds and all are located in the United States.

In the United States, airports are able to apply for authorization to collect an airport departure fee, referred to as the Passenger Facility Charge (PFC), to fund capital improvement projects that enhance the national air transportation network or enhance passenger safety. The maximum amount for such fees is set by Congress and the actual amount to be charged to each passenger is determined in each application by the amount of benefit the project provides to the system.

PFC bonds are subject to the same demand drivers as general revenue bonds at the airport yet lack the rate raising ability. Thus, in the absence of strong PFC debt service coverage ratios on a prospective basis, we typically consider these bonds to have weaker credit characteristics than the general revenue bonds of the airport. To assess the revenue strength of PFCs, we use the composite of the airport's Market Position and Service Offering scores as well as the Connecting Traffic notching factor.

Where prospective PFC debt service ratios are strong, generally at least 2x or higher, and where liquidity available to PFC bonds is strong, the PFC rating is generally one notch below the composite Market Position and Service Offering score. Where prospective PFC debt service coverage ratios are less strong (below 2x), or where liquidity where liquidity available to PFC bonds is weak, the PFC rating is generally two or more notches below the composite Market Position and Service Offering score. In essentially all cases, PFC ratings are typically capped at the general aviation revenue bond rating, since the latter typically benefit from revenue diversity as well as the ability to raise rates.

Obligor	PFC Bond Rating	Composite Market Position and Service Offering Score	Debt Service Coverage
Chicago (City of) IL – O'Hare Airport Enterprise	A2	A1	2.17x
Maryland Transportation Authority	A2	A1	3.62x
Massachusetts Port Authority	A1	Aa2	2.87x
Port of Seattle WA	A1	Aa3	3.68x

Appendix D: Ratings Considerations for Bonds Backed by Solely Airport Rental Car Charges (ConRACs)

In the United States, there has been increasing issuance by airport operators to fund the construction of consolidated rental car facilities at airports. Typically, rental car companies operating at an airport move into a special facility that contains customer service counters, rental car parking, and other services. The bonds are usually backed by some combination of fees that are charged per car rental day (called a customer facility charge, or CFC) and space rentals paid by the rental car companies (often referred to as RACs). The facilities are often referred to as ConRACs.

The same factors that determine the credit strength of an airport also underpin these ConRAC facilities, and the starting point for rating is the general airport revenue rating (or when the airport has no such bonds, an estimate thereof, as explained in Appendix C). Though some local market customers may utilize the facility, demand for rental cars at airport locations mainly reflects the demand for travel to a city via air travel. As with PFCs, credit quality of a ConRAC is typically below that of the general revenue bonds of the airport. The credit profile is generally weaker because the revenues are based on a single user base and revenue stream, there is greater competition for the service from public transportation or other ground transportation services, and historical data shows that rental car transactions are approximately twice as volatile as airline passengers.

As a newer asset class, the structure of ConRAC financings structures vary greatly, although most exhibit a number of similarities. While not constituting an exhaustive list of every rating consideration, the list below highlights some of the key credit considerations for ConRAC facilities:

Level of CFC Charge

CFCs are paid by the rental car end-user and are collected and remitted to the airport by the RACs. While the CFC charge is typically only a small portion of a customer's total rental invoice, a low CFC typically allows greater flexibility to increase fee levels if needed than the flexibility allowed from already high levels. The range of values in the rated universe currently ranges from a low of \$2.50 at Orlando to a high of \$8 at Chicago O'Hare.

Ability to Change CFC Levels

The ability to raise the CFC charge to maintain financial margins is a key consideration. Entities that have unilateral ability by airport management to raise the CFC with short notice, such as Chicago-O'Hare are considered to be strong. CFC regimes that are regulated by state statutes, such as in the state of California, are considered to be weaker.

Ability to Charge RACs for CFC Shortfalls

In some instances, the RACs have agreed jointly to provide for any deficiencies in CFCs collections below the amounts required to service debt through the institution of a pro-rata increase in the facility rents that the RACs pay to the airport. We view these provisions to be positive for the credit, assuming that the market share of RACs is well diversified and the credit quality of the RACs is generally at least high speculative grade.

Debt service coverage by net revenues

Debt service coverage by net revenues (without the use of balance sheet reserves) above 2.0 times is generally considered to be strong. Debt service coverage below 1.5 times is generally considered to be weak.

Leverage

We typically calculate leverage on a debt to transaction day basis. Leverage above \$60 per transaction day is considered to be weak while leverage below \$30 per transaction day is considered to be strong.

Reserves and Liquidity

ConRAC typically have a debt service reserve that is sized at the standard 3-prong test¹⁷ for tax exempt debt. Structures that provide other sources of required reserves are considered to be strong. We do not have a standard metric for liquidity, however we consider the level of project cash balances against outstanding debt, annual debt service requirements, and project operating expenses, in addition to the degree to which project revenues are protected from other airport uses.

Construction risk

Construction risk in ConRAC projects is generally quite low. The construction is often repetitive and does not include the construction of unique or complicated features. Construction risk is additionally mitigated by airports' ability to collect the CFC before the facility is constructed, thus reducing the risk of revenue losses from delayed completion. However, certain project elements add to the risk of overruns for both schedule and construction costs. Some projects that integrated transit or automated people mover systems have experienced moderate project cost overruns, which have sometimes increased leverage above baseline forecasts. Additionally, projects in brownfield areas or that are being constructed in difficult geological conditions could also have significant cost escalation.

We consider the degree of price certainty provided in the issuer's construction contracting method. The highest level of risk mitigation would be fixed price contracts with meaningful liquidated damages from a reputable contractor, supported by performance security in the form of performance bonds or letters of credit. If those features are present, we would likely not view construction risk as weighing negatively on the ConRAC rating. If the contracting method exposed the project to cost overruns, this would be a negative credit consideration that could weigh on the rating.

The exhibit below shows our current portfolio of rated ConRACs with their performance on the key considerations highlighted. Green denotes a strength while red denotes a weakness.

¹⁷ The standard 3-prong test for US issuers reflect an IRS requirement that debt service reserve funds be sized at the lesser of 1) maximum annual debt service, 2) 125% of the average annual debt service over the course of the bonds, or 3) 10% of par issuance price. In most cases, the debt service reserve fund approximates 12 months of debt service.

	ConRAC Senior Rating	Airport Reference Rating ¹⁸	CFC Level	Ability to Change CFC	Charge RACs for Shortfall?	Most Recent DSCR	Leverage	Construction of Complex Asset
Greater Orlando Aviation Authority	A2	Aa3	\$2.50	Yes	No	2.52x	\$3.52	No
Hillsborough(County of) FL Airport Enterprise	A3	Aa3	\$5.95	Yes	Yes	N/A	\$55.66	Yes
San Antonio (City of) TX Airport Enterprise	A3	A2	\$5.00	Yes	Yes	N/A	\$80.33	No
Austin (City of) TX Airport Enterprise	A3	A1	\$5.95	Yes	Yes	1.82x	\$68.94	No
Atlanta (City of) Airport Enterprise	A3	Aa3	\$5.00	Yes*	No	1.79x	\$30.28	No
Massachusetts Port Authority	A3	Aa2	\$6.00	No	Yes	2.34x	\$41.71	No
Charlotte (City of) NC Airport Enterprise	A3	Aa3	\$4.00	Yes	Yes	2.64x	\$24.19	No
Houston (City of) Airport Enterprise	A3	A1	\$4.00	Yes	No	1.70x	\$24.33	No
Phoenix (City of) Airport Enterprise	A3	A1	\$6.00	Yes	No	1.97x	\$29.25	No
Maryland Transportation Authority	A3	N/A	\$3.75	No	Yes	1.58x	\$28.05	No
Metropolitan Nashville Airport Authority, TN	A3	A1	\$4.50	Yes	Yes	1.84x	\$26.90	No
San Diego County Regional Airport Authority, CA	A3	A2	\$7.50	No	Yes	3.77x	\$55.51	No
Chicago (City of) IL - O'Hare Airport Enterprise	Baa1	A2	\$8.00	Yes	Yes	N/A	\$118.34	Yes
Rhode Island Airport Commission	Baa1	A3	\$6.00	No	Yes	1.11x	\$89.00	No
New Orleans Aviation Board	Baa1	A3	\$6.20	Yes (but above certain levels require board approvals)	Yes	1.96x	\$48.82	No
Alaska IEDA	Baa2	A1	\$6.50	Yes	No	1.09x	\$70.27	No

¹⁸ For US airports, the Reference Rating is the general airport revenue bond (GARb) rating.

Moody's Related Research

The credit ratings assigned in this sector are primarily determined by this credit rating methodology. Certain broad methodological considerations (described in one or more secondary or cross-sector credit rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments in this sector. Potentially related secondary and cross-sector credit rating methodologies can be found [here](#).

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Industry Outlook -

» [Seat Growth Will Push Enplanements Higher, Underpinning Our Stable Outlook, December 2014 \(161303\)](#)

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