

Contact	Phone
<i>New York</i>	
<i>Public Infrastructure Finance</i>	
Maria Matesanz	212.553.7241
Bart Oosterveld	212.553.7914
Omar Ouzidane	212.553.3892
Tom Paolicelli	212.553.0334
Patrick Ford	415.274.1739
John Nelson	
<i>Corporate Finance</i>	
Chee Mee Hu	212.553.3665
Aaron Freedman	212.553.4426

## Moody's Rating Methodology for State and Local Government Owned Toll Facilities in the United States

### Summary

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This methodology report provides a detailed explanation of how Moody's assigns debt ratings for state and local government-owned toll facilities in the United States (U.S.). The methodology applies only to toll facilities currently in operation and does not include projects under construction.

The report first provides an overview of the U.S. government-owned toll facility sector and discusses the trends shaping credit for toll facilities today and over the next several years. Next, it explains our rating methodology and discusses each of the key credit factors and sub-factors in greater detail as well as why they are important, how we measure them, and the ways in which they help explain Moody's ratings. These factors are:

- Market position
- Governance and management
- Financial position and performance
- Debt and capital plan
- Covenants and legal framework

The report also includes a discussion of how external government support or interference may serve to lift or depress ratings.

The appendices include Moody's U.S. toll facility sector medians, which we use as benchmarks in assigning ratings, and additional information about our financial and operating ratios for toll facilities. Also included are our rating definitions and a list of toll facility ratings.

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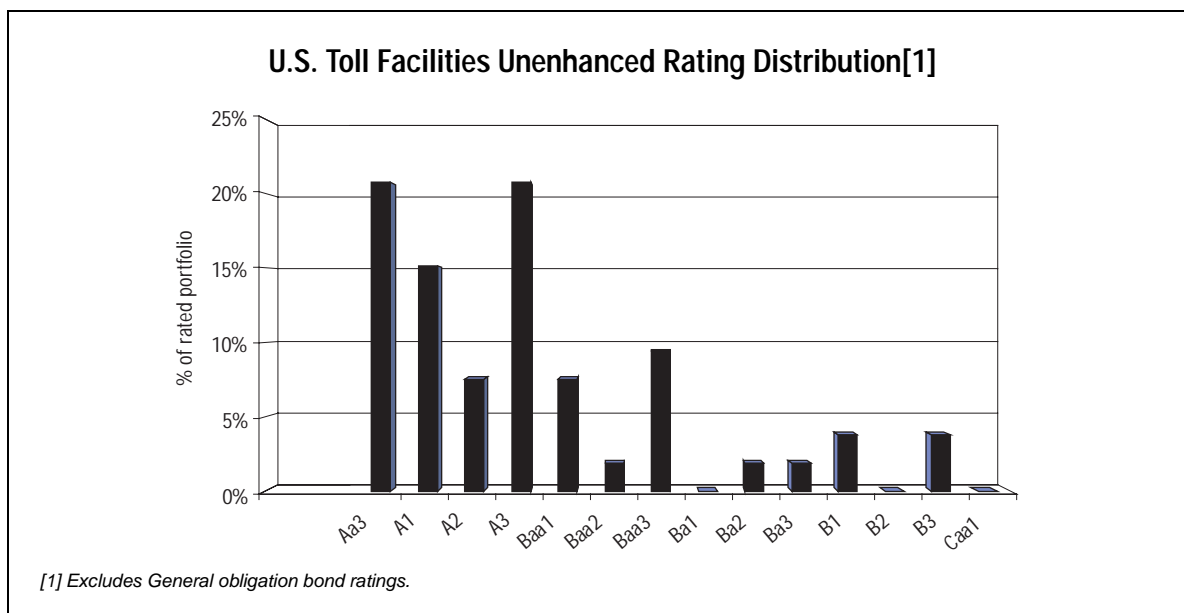
## Overview of U.S. State and Local Government Owned Toll Facility Ratings

In the U.S. Moody's rates approximately \$45 billion in toll revenue-secured debt issued by 47 entities. Approximately \$36 billion of outstanding debt has been issued to finance projects for established facilities and \$9 billion for start-ups. Start-up projects are generally those that have five years or less of operating history following the ramp-up period and after traffic volumes have stabilized. Approximately 78% of the U.S. toll facilities we rate are established facilities. With traffic closely tied to economic growth Moody's expects to maintain a stable outlook for the sector for the remainder of 2006 and into 2007, notwithstanding the escalating price of fuel. However, we note that while established toll facilities are expected to enjoy a stable outlook, start-ups may continue to experience relative uncertainty and negative pressure in some regional markets due to the lingering effects of the recent economic slowdown, coupled with overly optimistic forecasts of traffic growth. (see *Moody's 2006 Outlook for U.S. Toll Facilities, published in March 2006*).

The stable sector outlook reflects our expectation that generally favorable economic conditions throughout most of the U.S. will continue to produce a positive revenue environment for most toll roads. The stable operating results in 2005 evidenced by improvement in financial position and performance across the sector should be sustainable through 2006 and into 2007. Toll facilities will likely reap benefits from both technological and financing innovations that have been rapidly evolving in the U.S. market, albeit these are introducing new risks and additional costs into the sector. Electronic toll collection (ETC) technology is allowing toll operators to introduce flexible pricing schemes to both manage congestion and defer capital expansion projects. However, these technological innovations do not come without hardware and software costs. Increased expenditures are required for both the management and on-going operating costs associated with collecting violation revenues generated through video enforcement and inter-agency or inter-governmental coordination. Private-public partnerships and outright toll road privatizations, now actively supported by federal and state legislation, are introducing into the U.S. market new financing structures and higher leverage models already in use in other parts of the world.

Because of the relatively small number of issuers and their diversity, the toll facility sector does not lend itself to broad generalizations or easy comparisons of financial and operational benchmarks. While it is difficult to generalize across the sector because each toll facility operates within a unique set of geographic, demographic, economic and structural variables, Moody's believes that it is useful to compile benchmark median financial and operating ratios that apply to the three broad classes of toll facilities: (1) large, established, multi-asset systems; (2) regional, often single-asset systems; and (3) start-ups, which may be multi-asset or single asset systems. The credit quality of all three types is rooted in a core set of credit fundamentals, which can be measured using a standardized set of financial and operating ratios and explained with a common set of rating factors.

The rating distribution for the sector reflects the clustering of ratings for the three broad classes of toll road facilities. Moody's median rating is A2 for the sector as a whole; A1 for established multi-assets systems; A3 for smaller regional systems and Baa3 for startups.



The higher average ratings for established multi-asset systems, as compared to regional or start-up systems, generally reflect stable market factors, including a broader scope of operations and less competition as well as demonstrated demand from an established and more diversified service area. These larger systems also tend to have lower leverage, higher debt service coverage ratios, stronger operating ratios and higher liquidity levels relative to regional systems and start-ups. The economic diversity that multi-asset systems enjoy helps buffer them against cyclical economic downturns that may more severely affect the smaller, regional facilities.

Traditionally, U.S. toll facilities have been financed through local governments or government-owned public authorities that issue long-term, tax-exempt debt. While the rated debt of the large majority of U.S. facilities is not directly guaranteed by other units of government, the facilities sometimes benefit from direct government support or subsidization. These benefits may take the form of payment of operating and maintenance (O&M) expenses by another governmental entity, interest-free or low interest rate loans for various purposes, project management oversight or engineering services, and/or the donation of land or other assets to defray capital expansion costs. Moody's factors this direct or indirect government support into our ratings for toll facilities, examining instances when it has been tapped or withheld, and we also consider the credit impact on the parent government providing the support.

Over the near term, Moody's expects to see more innovation in financing techniques for new toll facilities, particularly as infrastructure needs grow and local, state and federal resources fail to keep pace with capital needs. Ownership and financing models and techniques used in Europe, Latin America and Canada are now being adapted to and implemented in the U.S. market (see shaded box: Public-Private Partnerships). These financing innovations include the use of public-private partnerships to expedite project construction or transfer construction risk to a private party, private bank loan financing, and fully privatized concession agreements, as well as the sale and privatization of existing publicly-owned facilities by local governments in need of cash. Risks associated with private ownership include any regulatory or legal limits on the ability of the operator to raise tolls sufficiently to cover costs, potential termination of the concession agreement while debt is still outstanding, and the potential for bankruptcy or insolvency of the private operator. In addition, the local government may be subject to additional political risk, as the relinquishment of control over toll-setting and capital reinvestment may result in constituents unhappy with the new tolling regime or the physical condition of the privatized asset. Other risks include the ability and willingness of the private operator to provide a sufficient amount of capital to maintain the asset throughout the life of the concession and the potential diversion of toll revenues for non-core enterprises, although the latter risk can be mitigated with distribution tests. Moody's notes that the risk of inadequate maintenance and revenue diversion are not unique to privatized concessions, and also are factored into ratings associated with traditional government-owned enterprises.

## Public-Private Partnerships

The Private Financing Initiative (PFI) model has been used extensively in the United Kingdom (U.K.) and the technique is also increasingly being used in Australia and Canada where it is referred to as Public-Private Partnerships (PPP's or P3's). This structure is designed to shift financing, construction and operating risk on public infrastructure projects to the private sector. This risk transfer can, if properly structured, strengthen the credit profile of the government entity. Private sector consortia are engaged, through a public bidding process, to design, build and operate various types of public infrastructure projects under long term concession agreements from a sponsoring government or one of its agencies.

PFI projects are usually distinguished from traditional government procurement arrangements by the fact that they feature fixed-price, date-certain construction contracts and incorporate a requirement to operate the completed facilities to pre-agreed performance standards pursuant to a long term concession agreement. The sponsoring government pays an availability charge to the concessionaire or private operator at project completion. This payment supports the debt and supplies a profit incentive to the operator.

Most often, PFI projects do not suffer from utilization or volume risk and are only required to ensure availability of the facility while meeting performance standards common in the industry. Toll road financings that are exposed to fluctuations in traffic volumes typically are not categorized as PFI transactions even if privately financed.

## Rating Methodology: Key Rating Drivers for U.S. Toll Facilities Include Quantitative and Qualitative Factors

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Our fundamental analytical framework includes five key rating factors and a total of 18 sub-factors:

### I. MARKET POSITION

- Scope of operations
- Competition
- Service area characteristics
- Demand

### II. GOVERNANCE AND MANAGEMENT

- Governance
- Regulatory framework
- Management

### III. FINANCIAL POSITION AND PERFORMANCE

- Operating performance
- Debt service coverage
- Revenue diversity
- Budgetary flexibility
- Financial reserves

### IV. DEBT AND CAPITAL PLAN

- Capital needs
- Capital planning and funding

### V. COVENANTS AND LEGAL FRAMEWORK

- Security pledge and flow of funds
- Rate covenant
- Additional bonds test
- Debt service and other reserves

To explain Moody's approach to rating U.S. toll facilities, the following section of this report will discuss the key rating factors and sub-factors that form our analytical framework, why they are important, how we measure them, and the ways in which they help inform Moody's ratings.

### I. MARKET POSITION

Moody's credit rating analysis for U.S. toll facilities focuses heavily on understanding the fundamental market position and economic base of the toll enterprise, which Moody's views as key drivers of future demand and long-run financial health. Our credit analysis requires an appreciation of the fundamental nature of the issuer's key assets, the role these play in the service area relative to competing alternatives, as well as the size and strength of the local economy, which are the basic drivers of demand. While our analysis also involves an evaluation of other credit factors, the strength or weakness of the facility's market position is the primary driver of the rating outcome. We review and stress-test feasibility reports and other data on traffic demand, competing roadways and local economic conditions and trends to arrive at a reasoned determination of projected demand for a toll facility.

**Scope of operations.** The scope of operations is a basic factor in the credit rating. The number of assets operated, whether the road is well established and fully built out, expanding into new areas, or whether it is still in the ramp-up stage will make a difference in the rating. Additionally, the distribution of assets is a key consideration whether the system's assets serve a densely populated metropolitan area, or a larger, more dispersed service area and a number of dis-

tinct population and economic centers. In Moody's view, an established multi-asset system of roads or bridges is better positioned than a single road or bridge to withstand competition, in part because the individual assets within an integrated system can generate demand for one another. On the other hand, some systems may include non-toll enterprises that may not be self-supporting and these could place financial pressure on the core toll enterprise.

Among the multi-asset systems that Moody's rates, bridge and highway systems that provide critical connections from housing to employment centers can have a natural monopoly position and are insulated from risk of traffic decline or damage at a single facility. Thus, established multi-asset systems tend to have the highest ratings in the sector, with a median of A1. The more asset and/or geographic diversity a toll facility has, the less vulnerable it is to economic downturns in any one region. Examples of very strong multi-asset systems are the Triborough Bridge and Tunnel Authority (TBTA) in New York, upgraded to Aa2 from Aa3 in 2005, and the Bay Area Toll Authority (BATA) in California (rated Aa3). The TBTA, which operates a system of seven bridges and two tunnels in New York City, withstood the stress of the terrorist attacks on 9/11 with minimal impact on traffic and revenue. More recently traffic and revenue remain resilient through several toll rate increases. BATA, which operates a system of seven bridges in the San Francisco Bay Area has retained its Aa3 rating, despite the fact that it has assumed financing and construction management responsibilities for the state's costly seismic retrofit program of these facilities. In 1989 BATA's largest facility, the San Francisco-Oakland Bay Bridge, was closed for one month due to damage sustained in the Loma Prieta earthquake, yet traffic and revenue were minimally impacted and other bridges in its system picked up a substantial amount of the affected traffic.

On the other end of the spectrum are single asset start-ups with unproven demand and still in the ramp-up phase, which face the highest risk of traffic falling short of expectations. This is especially true if the start-up facility is located in a sparsely populated area and is relying on future development to generate traffic. The ratings for such single asset start-up toll facilities tend to be in the Baa range or lower. The vulnerability of new single asset facilities to credit deterioration is highlighted by the recent rating downgrade to B1 from Baa3 of the Northwest Parkway Public Highway Authority, an 11-mile road that connects to the 470 beltway north of Denver in the city of Broomfield. The post 9/11 regional economic slowdown and technology job losses in the Denver area contributed to reductions in residential development and slower than forecasted job growth along the Parkway corridor, which negatively affected traffic, revenues and debt service coverage.

**Competition.** Public acceptance and usage of a toll facility is negatively correlated to the presence of alternate routes. If there is a free alternative, the toll facility may have trouble competing unless it offers either shorter travel distance or time, less congestion, or a safer route. Alternatives include not only other roads, but other forms of transportation, including rail and ferry service. Toll facilities that have little or no competition from other roadways or alternate modes of transportation generally have higher ratings than those more susceptible to competition. Moody's takes into account both current and planned competing alternatives in evaluating toll facility credit. For example, if major road network improvements on alternative routes to the toll facility are being planned, Moody's seeks to understand the impact they will have on traffic demand and how much traffic might be diverted from the toll facility. If the road improvements are to be tolled, how do their toll rates compare and how much time savings will these facilities offer? Assuming debt service coverage margins are maintained, a negative traffic impact of less than 10% over 10 years may not have a rating impact on a toll facility currently rated at the A level. On the other hand, if the traffic diversion is forecasted to be greater than 20% over the same period, and the traffic is critical to maintain debt service coverage margins, the risk posed by the competing facility this may result in a Baa-range or lower rating.

**Service area characteristics.** The more diverse and vibrant the economy in which it operates, the better a toll facility is able to withstand downturns in any given industry. With traffic driven by economic development, particularly in population, housing and employment, it is important to understand the growth prospects for the local economy. The socio-economic profile of the customer base is also an important consideration, particularly if toll rates are projected to increase over time to support operations and debt service costs. Users with higher income levels are more likely to be willing to pay tolls than those in less affluent areas. However, the value perceived by each user relative to his or her income level and/or ability to pay can vary significantly, so income alone is not necessarily directly correlated with willingness to pay or with rating levels.

**Demand.** Demand reflects the essentiality of the facility to the local economy. Moody's measures demand in terms of the stability and track record of tolled traffic. Important drivers of demand are the cost of using the facility and the time savings it offers. A facility that is heavily used by commuters or commercial traffic generally has a more robust and stable demand profile than one that depends on recreational traffic because of the discretionary nature of that traffic. However, a detailed examination of the user base is important to the credit analysis. Commercial traffic that is concentrated in one cyclical industry, for example, may actually be less stable than recreational traffic in an established, high-income, resort area. Facilities with a very long and stable trend of traffic demand, generally over 10 years or more, have a much stronger credit profile than those with an erratic trend of traffic growth that fluctuates from year to year. Facilities with little or no history of proven demand typically also start-ups, generally are rated at the lower end of the rating scale.

Market Position							
Sub-Factors	Aaa	Aa	A	Baa	Ba	B	Caa
	Established system with stable traffic			Start-up system with unstable traffic			
a) Scope of operations	Multi-asset statewide network of roads/bridges; essential service		Single or small-multi-asset regional network of roads/bridges; essential service	Single asset or small multi-asset regional road or bridge; somewhat essential service		Small single asset road or bridge; non-essential service	
b) Competition	No competing routes and limited alternate transport modes	Well-established and stable competitive environment; no significant enhancements to alternate modes expected	Competition may intensify over long-term; maximum expected impact on traffic <10% over 10 years	Competition may intensify over long-term; maximum expected impact on traffic 10-20% over 10 years	Changing competitive environment; new routes will likely impact traffic over next 3-5 years. 20-30% traffic impact over 10 years	Very rapidly changing competitive environment; significant (>10%) negative impact on traffic expected within 24 months	Competitive environment is eroding current traffic trends. Expected to rapidly deteriorate
c) Service area characteristics	Very strong, highly diversified economic base >20 years solid and predictable growth track record	Highly developed and well-diversified economic base; stable and well-proven demographics	Strong and diversified economic base; Strong but evolving demographics (uncertain over long-term)	Strong economic base, but lacks diversification; demographics can deteriorate over long-term	Evolving economic base; growing from a low base; demographics remain in transition, albeit positive	Weak or deteriorating economic base; no diversification; negative demographic trends	Poor economic base with little recovery prospects; no diversification; very weak demographics
d) Demand	Very long and stable track record of tolled traffic (>15 years)	Long and stable track record of tolled traffic (>10 years)	Stable track record of tolled traffic (>5 years)	Limited track record of tolled traffic (>2 years); but growth in line with or above expectations	Very limited track record of tolled traffic	Little or no track record of tolled traffic, or track record highly volatile	No track record of tolled traffic

## II. GOVERNANCE AND MANAGEMENT

Moody's closely evaluates governance structure and management of the authority responsible for the toll facility by assessing the authority's ability to independently set toll rates at levels sufficient to cover operating and debt service costs, as well as future capital needs, with a predictable margin. We also review governmental financial support, if any, as well as the authority's vulnerability to political pressures, which may force it to subsidize unrelated or non-revenue generating activities. We evaluate management's relationship to its governing board, its tenure and experience in the sector, track record in planning and budgeting, including ability to control costs, and history of implementing capital programs on time and within budget.

**Governance.** Moody's reviews the impact that the governing structure can have on the authority's ability to manage its operations and toll revenues. The governance structure may be entirely independent of higher level government oversight and allow for independent rate-setting authority, or it may be closely tied to a parent government. The independence of the authority's board is generally closely related to how the board members are selected, and whether or not the members are the same as or overlap the boards of affiliated governments. In the U.S., toll facilities are predominantly government-owned and structured as independent public authorities that issue debt secured solely by a lien on revenues generated by the toll facility. State or local governments may directly appoint the authority's board or may have indirect control over such appointments. In either case affiliated governments may be involved in the toll facility in a number of ways. Most established systems receive no governmental support, but nevertheless may be subject to political interference by higher level and/or component governments. State or local government involvement is sometimes limited to oversight of the construction program, though it may extend to the provision of financial and/or operational support, and in some cases may include the payment of O&M expenses (thus effectively creating a gross pledge). In other cases external support may involve equity or right-of-way contributions for new toll road construction projects. To start-up enterprises, which generally have no operational experience, high capital costs, and unproven demand, contributions by affiliated governments can be crucial if they are to attain an investment grade rating. Governmental support is not necessarily always explicit or legally binding. Moody's also considers the implied support that governmental support may provide in times of stress. All else being equal, independence from intervention by affiliated governments is likely to be viewed as a credit strength. However, in some cases a close relationship between a toll enterprise and affiliated government enterprises can enhance rather than diminish credit quality.

Another key aspect of governance is the tenure and experience in the sector of board members and senior management. Moody's expects to see long-tenured board members and management with expertise in the sector for facilities with stronger ratings. However, a mix of new and veteran staff often helps maintain a balanced management focus and openness to innovative thinking.

**Regulatory framework.** U.S. toll facility authorities usually have independent rate-setting authority, which enables them to adjust toll rates to offset traffic declines, recover from inflationary pressures and lower-than-projected usage as well as to fund improvements and expand facilities as needed. Toll facilities that have completely autonomous rate-setting ability as well as a demonstrated track record of making adjustments tend to be among the highest rated in the sector. Toll facilities that depend on external approvals for toll adjustments may be subject to greater political pressure to limit increases. A regulatory structure that requires higher level government approvals for toll adjustments or that limits toll increases to a predetermined index cap may hamper the authority's ability to recover costs during times of inadequate demand and this may lead to fiscal stress, or may constrain its ability to reinvest or expand facilities as needed.

Some toll enterprises in the U.S. are operated by authorities that are also responsible for other non-toll enterprises. In these structures the toll facility may subsidize the other projects and the bond security is typically a consolidated revenue pledge of all enterprises. This is particularly the case for bi-state authorities governed by two state governors whose underlying mission is the economic development of a region. Moody's examines the toll authority's non-toll business lines, such as commercial property, parking facilities, transit systems, ferry operations, airports, or other transportation infrastructure, evaluating to what extent these rely on financial support from toll facility revenues for operations and/or capital needs and assessing the likelihood that this need will increase or decrease in the future. Whenever toll facilities subsidize other enterprises or projects, a key credit factor is the subordination of these payments to both debt service payments and O&M. Also important in these cases are 'cash traps' or required reserve accounts designed to ensure that the core revenue-producing asset is maintained in good repair, notwithstanding the transfers.

While on occasion other enterprises managed by the toll authority may be self-supporting or even income producing, in Moody's experience the toll facilities tend to be the 'cash cows' of these hybrid enterprises and typically support the deficit operations of other enterprises or projects. The degree to which toll revenues are or can be transferred to affiliated governmental entities or used to subsidize the operations of other non-toll facility enterprises or projects that do not generate revenues or cannot support themselves can be a credit weakness, if not properly managed. While the level of such subsidies may not be substantial, fiscal stress at the affiliated government can create political pressure to increase the level of these subsidies, in turn creating financial challenges for the toll facility.

The Delaware River Port Authority (rated A3 on Watchlist for downgrade) illustrates the strain that component enterprises can put on a toll system. The Authority manages a four toll bridge system that provides essential commuter links into Philadelphia, which generally should result in a strong rating. However, the system's excess revenues are used to subsidize various non-self-supporting enterprises and economic development projects, and this has resulted in a rating relatively weaker than that of its peers.

**Management.** In assessing a toll facility's management we focus on the authority's track record in both operating and capital budgeting. Toll facilities managed by authorities that have a long established track record of conservative and realistic operating budgets and coherent long-range strategic and capital planning tend to have higher credit ratings than those with a less stable track record. Moody's views clearly articulated budgeting practices, debt and investment management policies, past record of successfully dealing with industry volatility, and the ability to achieve favorable financial results as indicators of management strength. Moody's analysis focuses on management's ability to respond effectively to a variety of industry challenges and opportunities. For example, we will consider the level of both required and discretionary reserves, and how these reserves can help mitigate sudden changes in cash flow, the introduction of non-tolled competing facilities, or road improvements that reduce traffic congestion. Moody's views positively a strategy of investing in demand-driven capital projects, rather than speculative expansion projects that depend on future development to pay for themselves as this sort of strategy can help minimize debt levels and avoid risks.

Governance and Management							
Sub-Factors	Aaa	Aa	A	Baa	Ba	B	Caa
a) Governance	Independent board; long tenure and sector expertise (>20 years)	Independent board; fairly long tenure and sector expertise (>15 years)	Semi-independent board; moderate tenure and sector expertise (>10 years)	Semi-independent board; moderate tenure and sector expertise (>5 years)	Board not fully independent; short average tenure and limited sector expertise (<5 years)	Board not independent; little tenure or sector experience (<3 years)	Board not independent; very little tenure or sector experience
b) Regulatory framework	Completely autonomous toll setting authority and demonstrated track record of adjustments as needed	Autonomous toll setting authority and demonstrated track record of adjustments as needed or established and transparent toll-setting formula.	Semi-autonomous toll setting authority and demonstrated track record of adjustments as needed or established and transparent toll-setting formula.	Semi-autonomous toll setting authority with some record of making adjustments, but also some failures	Toll increases subject to government approval or negotiation; history of delays or interference	Toll increases subject to negotiation; little or no track record of increases; very uncertain ability to increase tolls	Significant government interference in setting toll increases; toll setting expected to remain highly inflexible
c) Management	Very long and stable track record of budget and capital management.	Long and stable track record of budget and capital management	Stable track record of budget and capital management	Limited track record of budget and capital management	Very limited track record of budget and program management	Little or no track record of budget and capital management	No track record of budget and capital management

### III. FINANCIAL POSITION AND PERFORMANCE

Moody's analyzes the facility's operational and financial performance by evaluating the level of revenues relative to costs, composition of operating revenues and customer base, trends in revenues and expenditures, and the availability of reserves and other sources of liquidity relative to debt and operating expenses. We calculate key financial and operating performance ratios for each facility and compile these into sector medians which we then use as benchmarks in our credit analysis of issuers. The ratios we use to measure operating performance of toll facilities consider the capital-intensive nature of the sector, its susceptibility to competition from free roads or other modes of transportation, as well as the reliance on external financial support (donation of land, operating subsidies, lines of credit, etc.). Key financial ratios include the debt service safety margin, the debt service coverage ratio, debt per mile, O&M expense per roadway mile and compounded annual growth rates for transactions and toll revenue. (See Appendix 2 for ratio definitions).

Moody's notes that ratios are limited in their usefulness and need to be understood in the context of other rating factors. No single metric or rating factor determines the rating outcome. (See our August 2005 report: *Moody's Key Ratios and Medians for U.S. Government Owned Toll Facilities*). We also bear in mind that financial ratios are static and that the objective of our analysis is to provide ratings that are dynamic and forward-looking. For example, past ratios may not be indicative of future financial results or credit quality, particularly for toll facilities with rapidly escalating annual debt service requirements. Thus, Moody's uses projections and sensitivity analyses to the extent that they can help us determine the level of stress that the facility's revenues or expenditures can withstand and still pay O&M and debt service. This enables us to gauge the potential impact on financial results and credit quality of external factors, such as economic recessions or changes in the regulatory environment, as well as the impact of internal factors, such as toll rate adjustments, increased debt issuance and changes in management strategy.

**Operating performance.** Moody's analyzes short and long-term trends in financial performance for indications of consistency or volatility. The more volatile the revenue stream, the more important it is that the facility has strong debt service coverage to ensure there is adequate financial margin in the case of a downturn in traffic and revenue. Slow but steady traffic growth supports financial stability and planning for capital needs. While rapid growth in traffic and revenues is an indicator of strong demand, it also raises questions regarding the adequacy of a facility's capacity and the potential capital costs it may have to incur to finance necessary expansion projects. For established facilities, the median 5-year compounded annual growth rate (CAGR) in total transactions and revenues is 1.6% and 7.1% respectively, reflecting the mature nature of the facilities. For start-ups the medians are much higher at 12.4% and 22%, with the growth rate primarily reflecting ramp-up as users adjust their travel patterns to take advantage of the new facility. The difference in growth rates between traffic and revenues reflects the impact of toll increases. When either traffic or revenues declines, Moody's seeks to understand the underlying causes, which can be due to regional or national economic recessions, increasing gas prices or tolls or the introduction of competition. If a toll increase was the cause of a significant drop in transactions, the enterprise may have little rate raising flexibility regardless of its legal ability to independently set rates. The debt service safety margin measures how large a drop in revenue a toll facility can absorb and still pay debt service. Facilities whose debt is rated Aa generally have a 20% or greater debt service safety margin.

**Debt service coverage ratio.** Moody's uses this calculation to measure a toll facility's ability to repay debt principal and interest from net operating revenues. An issuer's ability to consistently achieve a stable debt service coverage ratio is an important indicator of its long-run financial health and is particularly critical for those facilities that lack large financial reserves. While a drop in coverage in a given year may not be a credit concern, two or more years of weak financial performance marked by declining coverage usually indicates that there is a structural budget imbalance. The median aggregate debt service coverage for established toll facilities currently stands at 1.9 times compared to 1.4 times for start-up facilities. For toll facilities whose operational expenditures are paid by state or local governments, Moody's looks at debt service coverage by gross revenues. Net and gross coverage ratios are not directly comparable. At any given level, gross coverage is less vulnerable to revenue declines than net coverage. Maximum annual debt service (MADS) coverage indicates to what extent future peak debt service can be covered from the current year's net operating revenues. This is a particularly important ratio for start-ups or expanding systems, which tend to have steadily escalating annual debt service requirements. If historical operating cash flow covers MADS by less than one time, Moody's evaluates how the toll enterprise intends to repay bondholders and the assumptions being made regarding future revenue growth and operating performance. Not all debt service coverage ratios are created equal. Two issuers with the same debt service coverage ratio may in fact have substantially different financial cushions depending upon their capital structures. This distinction is best captured by the debt service safety margin.

**Revenue diversity.** Moody's views revenue diversity as a credit strength for user-fee dependent enterprises such as toll facilities. Though revenue diversity in this sector thus far has been fairly limited, some revenue diversification can offset concentration or exposure to economically sensitive commercial traffic. While toll facilities may not appear to have as much revenue diversity as other enterprises, given that the majority of their revenues (a median of close to 89% for the sector) is derived from tolls, Moody's focuses on the composition of the service area economy and traffic to gauge the relative concentration or diversity of a facility's operating revenues. The broader the scope of a toll facility's assets and operations, and the more diverse and vibrant the economy in which it operates, the better it is able to withstand downturns in any given industry.

Some toll facilities are trying to develop concession revenues, including food, fuel, telecommunications services and real estate development, ETC software development, and telecommunication services to diversify their revenue base. However, while growing in the U.S. these revenues thus far continue to represent a small percentage of overall operating revenues.

**Budgetary flexibility.** Moody's evaluates budgeting practices and how management monitors actual performance relative to budget to determine whether sufficient flexibility and controls are in place to protect against unforeseen events. Many toll facilities budget conservatively, building flexibility into the budget that can be used to cushion operations in the event of an unexpected revenue shortfall or expense increases. Prudent practices include budgeting for lower traffic volumes than are actually expected and limiting reliance on non-operating revenues. Moody's considers how frequently a toll facility monitors revenues and expenses during the course of a year, and the types of mid-year corrections, including rate increases or expense cuts management may make to ensure that year-end financial performance meets budget expectations. Moody's also assesses the adequacy of budgeting for renewal and replacement expenses relative to the size, age, and physical condition of a facility.

Moody's also seeks to identify and understand trends in operating expenses and how much flexibility the facility has to cut operating costs. Primary toll facility expenses include the cost of operating and maintaining the facility, including salaries, administration, software and hardware for electronic tolling collection systems, as well as enforcing toll collection for non-paying customers. Some of the growth in expenses that toll enterprises have experienced in recent years stems from non-discretionary items over which management has little control, such as fuel, insurance and pension costs. If it is unable to adjust toll rates to offset increasing expenditures, a toll facility may be faced with growth in expenses that exceeds growth in revenues, reflected in a rising operating ratio. A rising operating ratio is an indication that a toll facility is approaching financial imbalance. Moody's also measures a facility's operating expenditures relative to the size of the asset in terms of roadway miles. The median O&M expense per roadway mile for established toll roads is \$590,000 compared to \$630,000 for start-ups, reflecting that O&M expenses are fairly constant for the sector.

**Financial reserves.** The relative leverage of a toll facility's assets or reserves is an important factor Moody's rating analysis. In general, the more leveraged an enterprise is the greater the strain on credit quality. Many toll enterprises do not fully account for the true value of their primary assets and Moody's measures debt levels relative to both the size of the asset in terms of roadway miles and demand for the facility, measured by the number of annual transactions. For established toll facilities, the median debt per roadway mile is just over \$3 million, while that of start-ups is substantially higher at nearly \$46 million. Debt in excess of \$15 million per roadway is generally reflected in ratings at the lower end of the investment grade scale.

Another ratio Moody's uses to gauge leverage is the debt ratio. This ratio measures net debt relative to net assets. The median debt ratio for established toll enterprises is 58% compared to 131% for start-ups, again reflecting the higher leverage of start-up facilities relative to established ones. It is important to note that Moody's view of debt position includes both a balance sheet focus and an income statement analysis, such that strong cash flow and good debt service coverage may be sufficient to garner an above investment grade rating despite high leverage.

Financial Position and Performance							
Sub-Factors	Aaa	Aa	A	Baa	Ba	B	Caa
a) Operating Performance	Debt service safety margin>20%		Debt service safety margin>10%	Debt service safety margin>5%	Debt service safety margin> 0%		Debt service safety margin<0%
b) Debt Service Coverage	>3x	>2.0x	>1.5x	>1.25x	>1.1x		>1.0x
c) Revenue diversity	Very high revenue diversity based on economy; predominantly commuter-based traffic	High revenue diversity based on economy; predominantly commuter-based traffic	Moderate diversity based on economy; mix of commuter-based, commercial <15% discretionary traffic	Moderate diversity based on economy; mix of commuter-based, commercial with <25% discretionary traffic	Low diversity based on economy; mix of commuter-based, commercial with >25% discretionary traffic	Very low diversity based on economy; mix of commuter-based, commercial with >50% discretionary traffic	Extremely low diversity based on economy; mix of commuter-based, commercial with >75% discretionary traffic
d) Budgetary flexibility	Highly flexible; able to easily cut expenditures and increase revenues through rate adjustments		Moderately flexible; some ability to cut expenditures and increase revenues through rate adjustments		Inflexible; little or no ability to cut expenditures and increase revenues through rate adjustments		Extremely inflexible; no ability to cut expenditures or increase revenues
e) Financial reserves	Days cash >12 months	Days cash >9 to 18 months	Days cash >6 months	Days cash >3 months	Days cash <3 months		
	Debt per mile <\$5,000	Debt per mile <\$10,000		Debt per mile>\$15,000	Debt per mile>\$20,000	Debt per mile>\$25,000	Debt per mile>\$30,000
	Low debt ratio <30%	Low to moderate debt ratio <60%	Moderate debt ratio >60%	High debt ratio >80%	Very high debt ratio >100%		

#### IV. DEBT AND CAPITAL PLAN

In evaluating a toll facility's debt and capital program, Moody's focuses not only on current leverage but also on the debt repayment structure, the type of debt being used, the use of derivatives and future borrowing anticipated to fund its capital improvement program (CIP). The capital improvement program and proposed plan of finance can have a major impact on a toll facility's rating due to the potential for additional debt as well as for enhanced revenue generation. Moody's evaluates the nature and condition of current assets relative to service needs and the impact of planned future capital expenditures on leverage, liquidity and debt service coverage.

Moody's also evaluates the mix of variable and fixed-rate debt and the debt service profile. Moody's does not have specific benchmarks for variable versus fixed-rate debt, or for how debt should be amortized, and we evaluate each situation on a case-by-case basis. Deferring principal is frequently necessary for start-up facilities or expansion financings, but the pace at which annual debt service requirements escalate is evaluated to determine whether it can be supported by achievable traffic and revenue growth projections. Regardless of how conservative the assumptions, reliance on future traffic and revenue growth to meet future debt service requirements increases the risk profile for toll facilities. Moody's assesses interest rate swap agreements and other derivative debt instruments, particularly for lower-rated toll facilities, with a focus on immediate termination events, cross-default provisions, and situations in which a toll facility would be required to post collateral. (See *Moody's special comment, "Hidden Risks of Variable Rate Debt," published in March 2004*).

**Capital needs.** Moody's reviews the size and scope of a toll facility's CIP along with its financing plans and the impact these are expected to have on its future debt levels. At the same time, we also assess the strategic and economic rationale for the CIP, whether it is intended to address congestion, maintain the condition of existing assets, or expand into new areas, and the implications this has for revenue generation going forward. We also evaluate a toll facility's underlying assumptions relating to forecasted population and employment growth in the service area and whether this growth will translate into future traffic and revenue growth. Those facilities with little in the way of capital needs, especially relative to their resources, generally will have higher credit quality. If capital needs are close to or in excess of outstanding debt, then the facility's debt rating will tend to be at the lower end of the rating scale, unless the new facilities are reasonably expected to generate excess cash flow or contribute significant new revenue.

Increased leverage may or may not have a negative impact on credit quality. Debt-financed projects that improve a toll facility's capacity or enhance access to the facility are likely to result in an improved market position and are less likely to have a negative impact on credit quality provided Moody's believes that the toll facility will be able to comfortably manage the increase in debt service costs. However, rating pressure can arise if the cushion provided by financial resources relative to the amount of debt outstanding is no longer consistent with the risk profile at a particular rating level. In addition, Moody's may be concerned with the reduced long-term financial flexibility resulting from a significant amount of added fixed costs. Moody's closely evaluates those toll facilities that plan to expand in order to induce development and capture additional traffic from expected development, as implementation of such a plan can significantly increase the risk profile of the facility.

**Capital planning and funding.** When an enterprise embarks on a significant capital program, Moody's assesses management's ability, based on its track record, to ensure that the project is completed on time and within budget. Moody's explores how extensive and successful management's track record has been with previous projects and what changes have been implemented to improve performance in the future. We look to management to be able to provide a thorough assessment of the risks inherent in any particular project and the mitigating elements it has put in place to address them, including fixed-price, date-certain contracts secured with liquidated damages and payment and performance bonds, program oversight and management, adequate reserves and contingency funds, and step-in rights in the event of contractor failure. For established systems the ability to support additional debt without having to increase toll rates is a credit strength.

Debt and Capital Plan							
Sub-Factors	Aaa	Aa	A	Baa	Ba	B	Caa
a) Capital needs	No additional indebtedness allowed for non-self-supporting projects; capital needs modest relative to resources	Additional indebtedness allowed only for core enterprise with clear restrictions on leveraging through covenants or board policies	Capital needs equal to or in excess of outstanding debt, but offset by growing resources	Capital needs in excess of outstanding debt and approximating maximum allowed under covenants	Capital needs in excess of outstanding debt and at or above maximum allowed under covenants		Unmanageable debt burden; no financial cushion; in violation of covenants
b) Capital planning and funding	Sophisticated long-term planning; very strong track record of project completion on time and within budget	Long and stable track record of project completion on time and within budget	Stable track record of project completion on time and within budget	Limited track record of project completion on time and within budget	Very limited track record of project completion on time and within budget	Little or no track record of project completion on time and within budget	No track record of project completion on time and within budget

## V. COVENANTS AND LEGAL FRAMEWORK

As with other enterprise revenue bonds, for debt secured by toll facility revenues, Moody's looks to indenture covenants as a source of protection for bondholder interests. Moody's views management's willingness to incorporate effective covenants in bond legal documents or indentures as a signal of its commitment to abide by stated financial risk parameters over the long term. However, Moody's notes that a set of strict covenants is not the key driver of the rating outcome. Bond covenants can support a high rating based on other fundamental credit characteristics, but in isolation they cannot ensure such a rating. Further, bond covenants can lose their meaning entirely if they are not supported by sound financial performance.

Indenture provisions governing the flow of funds, rate covenants, additional bond issuance, debt service and other reserve requirements, and provisions allowing for the distribution of excess cash flow, are important for toll facility issuers as they provide for a balance between the demands of an issuer's other stakeholders, its own priorities, and the security of bondholders. Strong indenture covenants can also help mitigate the rating impact of certain developments outside of the issuer's control. In the low investment grade and speculative rating categories, where most start-up toll facilities fall, debt service reserve funds, additional bonds tests, and liens against particular assets or revenue streams can provide meaningful protection to bondholders, particularly in the event of a severe downturn in expected traffic and revenue. On the other hand, conservative bond covenants may be less important for an established facility expected with little competition and proven pricing power, provided it establishes a track record of balanced financial operations and satisfactory debt service coverage ratios.

Moody's evaluates the bond indenture and any other pertinent legal documents that pertain to repayment of debt. For each security we rate, we will assess the impact of operating and liquidity covenants, as well as additional bonds tests. The specific lien offered to bondholders also factors significantly into our rating assessment. We will also evaluate the position of bondholders compared to liquidity providers or swap counterparties.

**Security pledge and flow of funds.** The bond indenture details the security pledge and flow of funds. Most toll facility debt is secured by a pledge of net system revenues, after the payment of O&M. The flow of funds specifies the allocation of funds held under the indenture. A key analytic issue is whether or not funds may flow out of the indenture to fund non-system projects, or must be retained within the system. Bondholders may benefit from a 'closed' system because retained funds may bolster the balance sheet, provide a source of working capital for system improvements and new projects, and reduce the debt burden on the system in the future. On the other hand, if the indenture requires the funding of various reserves such as rate stabilization accounts, renewal and replacement or capital maintenance funds, outflows for 'open' systems will be more limited and the toll facility will retain sufficient funds to maintain assets and fund needed improvements. In Moody's view, toll facilities that limit revenue outflows either through indenture covenants or by policy tend to have a stronger credit profile.

**Rate covenant.** The rate covenant is a legal pledge to set toll rates and other revenues at a level sufficient to achieve a certain coverage ratio for both operating expenses and debt service. If the coverage ratio falls below this level, the rate covenant will typically require the debt issuer to increase rates to ensure compliance. At the higher rating levels (A and above) rate covenants tend to be stronger—above 1.5 times coverage of annual debt service by net revenues for toll facilities; however, start-up facilities with a weak market position may require stronger covenants just to achieve investment grade ratings.

**Additional bonds test.** This test, commonly referred to as the ABT, requires the toll facility to demonstrate that revenues, typically net revenues, are sufficient to support future debt issues. The strongest additional bonds tests are based on actual revenues collected over a specified period of years. Many ABTs include a prospective test based on projected future revenues, including the impact of scheduled future toll rate increases. As with the rate covenant, Moody's prefers to see stronger ABTs—above 1.5 times—for higher rating levels, and sometimes these stronger covenants may make the difference between an investment rating or not.

**Debt service and other reserves.** Most U.S. toll facilities have a 12-month debt service reserve, regardless of rating level. Debt service reserves are especially important for weak toll facilities or for single asset or start-up projects where market demand and toll revenues are unproven. Other operating and capital maintenance reserves range from upwards of 9 months for toll facilities in the Aa range to less than one month for very weak facilities. Moody's views these reserves as critically important in allowing toll facilities to weather economic downturns or traffic and revenue disruptions due to unforeseen events. For example, in the wake of Hurricane Katrina, the single asset Greater New Orleans Expressway Commission was shut down and then re-opened for several weeks as a toll free emergency access route. Nevertheless, the Commission retained its A2 rating due in large part to its strong balance sheet and ability to pay O&M and debt service from available reserves, until it reopened as a commercial facility.

Covenants and Legal Framework							
Sub-Factors	Aaa	Aa	A	Baa	Ba	B	Caa
a) Security pledge and flow of funds	Gross or net revenue pledge of all assets; closed loop	Gross or net revenue pledge of all assets; closed loop or very limited outflow to non-core enterprises	Gross or net revenue pledge of all assets with limited outflow to non-core enterprises	Gross or net revenue pledge of all assets with outflow to non-core enterprises	Gross or net revenue pledge of all assets with outflow to non-core, non-self-supporting enterprises, or out of system	Gross or net revenue pledge of all assets with substantial outflow outside of system projects	Gross or net revenue pledge of all assets with heavy outflow to non-system projects
b) Rate covenant and additional bonds test	>3x coverage of debt service by net revenues	>1.5 coverage of debt service by net revenues		>1.25x coverage of debt service by net revenues	>1.1x coverage of debt service by net revenues		>1.0x coverage of debt service by net revenues
d) Debt service and other reserves	12 months DSRF or greater; >12 months operating reserve; capital maintenance reserve	12-month DSRF; >9 months operating reserve; capital maintenance reserve	12-month DSRF; >6 months operating reserve; capital maintenance reserve	12-month DSRF; <6 months operating reserve; capital maintenance reserve	12-month DSRF; >3 months operating reserve; capital maintenance reserve	DSRF tapped; <3 months operating and maintenance reserves	DSRF depleted; no operating or maintenance reserves

## Related Research

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### **Special Comments:**

[Moody's Key Ratios and Medians for U.S. Government Owned Toll Facilities \(Report # 93899\)](#)

[Stable Outlook for State Ratings \(Report # 96540\)](#)

[Positive Credit Trends in Most Municipal Sectors in 2005: Credit Weakness Observed in the Southeast Region during the Fourth Quarter due to Hurricane Katrina Rating Revisions \(Report # 96316\)](#)

[Construction Risk: Mitigation Strategies for U.S. Public Finance \(Report # 89406\)](#)

*To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.*

## Appendix 1: Selected Moody's Medians for U.S. State and Local Government Owned Toll Facilities

The median represents the middle value in an ordered sequence of data, such that 50% of the observations are below the median and 50% are above the median. Unlike the mean, the median is affected only by the number of observations in a data set and not by the magnitude of the extremes. Moody's 2005 medians consist of 47 toll facilities.

Key Medians and Ratios by Class	Start-up Medians	Established Medians
Senior Most Rating	Baa3	A1
Operating Ratio (%)	32.4	51.8
Debt service safety margin (%)	20.8	25.7
Senior lien debt service coverage (x)	1.4	2.1
O&M expense per roadway mile (\$000)	631	593
Debt ratio (%)	131.3	58
Debt per roadway mile (\$000)	45,734	3,283
Debt per transaction (\$000)	27	5.1
5-YR CAGR total transactions (%)	12.4	1.6
ETC Revenues as a % of total toll revenue (%)	47.7	44
5-YR CAGR total toll revenue (%)	22.2	7.1

Key Medians by Rating Category	Aa	A	Baa
Operating Ratio (%)	47.6	48.5	32.4
Debt service safety margin (%)	27.5	24.1	25
Senior lien debt service coverage (x)	2.4	1.8	1.9
O&M expense per roadway mile (\$)	448	683	759
Debt ratio (%)	57.9	66	123
Debt per roadway mile (\$)	2,323	12,703	35,096
Debt per transaction (\$)	4.5	6	26
5-YR CAGR total transactions (%)	2.7	1.2	12.4
ETC Revenues as a % of total toll revenue (%)	42	50.3	75.6
5-YR CAGR total toll revenue (%)	3.3	8.5	22.2

## Appendix 2: Key to Moody's U.S. State and Local Government Owned Toll Facility Ratios

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### Average toll per mile (\$)

Total toll revenues for the fiscal year divided by total miles traveled.

This is highly dependent on the type of tolling system - ticket vs. barrier, which determines the number of transactions per trip - and therefore of limited value as a comparable

### Debt per roadway mile (\$)

Net funded debt divided by the aggregate length of the entity's roads.

### Debt per transaction (\$)

Net funded debt divided by the total number of revenue transactions for the fiscal year.

### Debt ratio (%)

Net funded debt divided by the sum of net fixed assets and net working capital. This measures the degree of leverage of the facility. Because many toll facilities do not account for the true value of their assets, this ratio has limited usefulness as a comparable for the toll facility sector.

### Debt service safety margin (%)

Net revenues less principal and interest requirements for the year divided by gross revenue and income. This ratio measures how large a drop in revenues the enterprise can sustain and still pay debt service.

### Long term debt

Total long-term debt plus the current portion of long-term debt.

### Net fixed assets

Fixed assets including construction in progress less accumulated depreciation.

### Net funded debt

Long-term debt plus accrued interest payable less the balance in both the Debt Service Reserve Fund and Debt Service or Sinking Fund.

### Net revenues

Gross revenues and income less operating and maintenance expenses net of depreciation expense, calculated on a modified GAAP basis.

### Operating ratio (%)

Operating and maintenance expenses divided by total operating revenues. Operating and maintenance expenses are net of depreciation, amortization and interest requirements. This ratio measures whether the enterprise can meet all operating costs from toll and other operating revenue.

### O&M expense per roadway mile (\$)

Total expenses for operations, maintenance, and administration divided by the aggregate length of the entity's roads.

## Appendix 3: List of U.S. UnEnhanced State and Local Government Owned Toll Facility Ratings

State	Moody's Organization Name	Senior Rating	Stage of Development	Asset Mix	Geographical Distribution	Facility Type
CA	Bay Area Toll Authority, CA	Aa3	Established	Multi-asset	Regional	Bridge
TX	Cameron (County of) TX	A3	Established	Multi-asset	Regional	Bridge
TX	Central Texas Regional Mobility, TX	Baa3	Start-up	Single-asset	Regional	Highway
TX	Central Texas Turnpike System, TX	Baa1	Start-up	Single-asset	Regional	Highway
VA	Chesapeake (City of) VA Toll Facility	Baa1	Start-up	Single-asset	Regional	Highway
TX	Del Rio (City of) TX	Baa2	Established	Single-asset	Regional	Bridge
DE	Delaware River and Bay Authority, DE	A1	Established	Multi-asset	Regional	Bridge
PA	Delaware River Joint Toll Bridge Commission, PA	A2	Established	Multi-asset	Regional	Bridge
PA	Delaware River Port Authority, PA	A3	Established	Multi-asset	Regional	Bridge
CO	E-470 Public Highway Authority, CO	Baa3	Start-up	Single-asset	Regional	Highway
TX	Eagle Pass Toll Bridge System	Baa1	Established	Single-asset	Regional	Bridge
FL	Florida (State of) FL - Sunshine Skyway	A1	Established	Single -asset	Regional	Bridge
FL	Florida (State of) Turnpike System	Aa2	Established	Multi-asset	State-wide	Highway
FL	Florida Department of Transportation - Allegator Alley	A3	Established	Single -asset	Regional	Highway
CA	Foothill/Eastern Transportation Corridor Agency, CA	Baa3	Start-up	Single-asset	Regional	Highway
LA	Greater New Orleans Expressway Commission, LA	A2	Established	Single Asset	Regional	Bridge
TX	Harris (County of) TX Toll Facility, TX	A1	Established	Multi-asset	Regional	Highway
IL	Illinois State Toll Highway Authority, IL	Aa3	Established	Multi-asset	Regional	Highway
KS	Kansas Turnpike Authority, KS	A1	Established	Multi-asset	State-wide	Highway
TX	Laredo (City of) TX	A3	Established	Multi-asset	Regional	Bridge
FL	Lee (County of) FL	A3	Start-up	Multi-asset	Regional	Bridge
ME	Maine Turnpike Authority, ME	Aa3	Established	Single-asset	State-wide	Highway
MD	Maryland Transportation Authority	Aa3	Established	Multi-asset	State-wide	Combined
MA	Massachusetts Turnpike Authority - Metropolitan Highway System	A3	Established	Multi-asset	Regional	Combined
MA	Massachusetts Turnpike Authority - Western Turnpike	Aa3	Established	Single-Asset	Regional	Highway
TX	McAllen (City of) TX	A2	Established	Multi-asset	Regional	Bridge
FL	Miami-Dade County Expressway Authority, FL	A3	Established	Multi-asset	Regional	Highway
NH	New Hampshire (State of) Turnpike Enterprise	A1	Established	Multi-asset	State-wide	Highway
NJ	New Jersey Turnpike Authority	A3	Established	Multi-asset	State-wide	Highway
NY	New York State Bridge Authority, NY	Aa2	Established	Multi-asset	Regional	Bridge
NY	New York State Thruway Authority, NY	Aa3	Established	Multi-asset	State-wide	Combined
TX	North Texas Tollway Authority, TX	A1	Established	Multi-asset	Regional	Highway
CO	Northwest Parkway Public Highway Authority	B1	Start-up	Single-asset	Regional	Highway
OH	Ohio Turnpike Commission, OH	Aa3	Established	Multi-asset	State-wide	Highway
OK	Oklahoma Transportation Authority	Aa3	Established	Multi-asset	State-wide	Highway
CA	Orange County Transportation Authority (SR 91 Toll Road) , CA	A1	Start-up	Single-asset	State-wide	Highway
FL	Orlando-Orange County Expressway Authority, FL	A1	Established	Multi-asset	Regional	Highway
PA	Pennsylvania Turnpike Commission, PA	Aa3	Established	Multi-asset	State-wide	Highway
VA	Pocahontas Parkway Association, VA	Ba3	Start-up	Single Asset	Regional	Highway
CA	San Joaquin Hills Transportation Corridor Agency, CA	Ba2	Start-up	Single-asset	Regional	Highway
FL	Santa Rosa Bay Bridge Authority, FL	B1	Start-up	Single-asset	Regional	Bridge
NJ	South Jersey Transportation Authority, NJ	A3	Established	Single-asset	Regional	Highway
FL	Tampa-Hillsborough County Expressway Authority, FL	A3	Established	Single-asset	Regional	Highway
NY	Thousand Islands Bridge Authority, NY	A3	Established	Single-asset	Regional	Bridge
VA	Toll Road Investors, L.P.	Baa3	Start-up	Single-asset	Regional	Highway
NY	Triborough Bridge & Tunnel Authority, NY	Aa2	Established	Multi-asset	Regional	Bridge
WV	West Virginia Parkways, Economic Development and Tourism Authority, VA	Aa3	Established	Single-asset	State-wide	Combined

## Appendix 4: List of Non U.S. State and Local Government Owned Toll Facility Ratings

Non U.S. Toll road projects - Ratings		
Issuer Name	Country	Long Term rating
Access Roads Edmonton Ltd.	Canada	Aa3
Airport Motorway Trust	Australia	A3
Alis Finance ARL	France	Aaa [1]
Autobahnen-Und Schnellstrassen Finanzierungs	Austria	Aaa [1]
Autolink Concessionaires (M6) PLC	UK	Aaa [1]
Autopista del Mayab	Mexico	Ba1/Ba2
Autopista del Sol	Chile	Baa2/Aaa
Autopista Monterrey Cadereyta	Mexico	Baa3/Aaa
Autopistas de Leon, S.A.C.E (Aulesa)	Spain	Aaa [1]
Autostrade Participations S.A.	Luxembourg	A3
Autostrade S.p.A - LT Bank facilities	Italy	A3
Autovia de Los Vinedos, S.A (AUVISA)	Spain	Baa3/Aaa [1]
BG Trust, Inc. (Corredor Sur Trust Notes)	Panama	Baa2
Bina-Istra D.D	Croatia	Baa2
Brisa Finance B.V.	Netherlands	A3
Brisa-Auto-Estradas de Portugal, S.A.	Portugal	A3
Carretera de Cuota Mexcol-Toluca	Mexico	Aaa [1]
Chinese Future Corporation	Cayman Islands	B1/Ba2
Connect M77 / GSO PLC	UK	Aaa [1]
Great Belt A/S	Denmark	Aaa [1]
Highway Management (City) Finance plc	UK	Aaa [1]
Interlink Roads Pty Ltd	Australia	A2
Lane Cove Tunnel Finance Company	Australia	Baa3
Libramiento de Matehuala Toll Road Mexico	Mexico	Baa3/Aaa
Road King Infrastructure Finance (2004) Ltd	British Virgin Islands	Baa3
Road Management Consolidated PLC	UK	Aaa [1]
Road Management Services (A13) PLC	UK	Aaa [1]
Road Management Services (Finance) PLC	UK	Aaa [1]
Ruta 5 Tramo Talca Chillan, S.A.	Chile	Aaa [1]
Rutas del Pacifico	Chile	Baa2/Aaa
Sanef S.A.	France	A2
Sociedad Concesionaria Autopista Americo Vespucio Sur, S.A.	Chile	Aaa [1]
Sociedad Concesionaria Autopista Central	Chile	Baa3/Aaa
Sociedad Concesionaria Costanera Norte, S.A.	Chile	Baa2
Sociedad Concesionaria Vespucio Norte Express, S.A.	Chile	Baa3
Societe Marseillaise de Tunnel Prado - Carnage	France	Aaa [1]
Talca Chillan Sociedad Concesionaria	Chile	Baa2/Aaa
Transurban Finance Company	Australia	A3

[1] Insured.

## Appendix 5: Rating Definitions

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### U.S. MUNICIPAL AND TAX-EXEMPT RATINGS

Municipal Ratings are opinions of the investment quality of issuers and issues in the U.S. municipal and tax-exempt markets. As such, these ratings incorporate Moody's assessment of the default probability and loss severity of these issuers and issues. The default and loss content for Moody's municipal long-term rating scale differs from Moody's general long-term rating scale.

#### MUNICIPAL LONG-TERM RATING DEFINITIONS:

##### **Aaa**

Issuers or issues rated Aaa demonstrate the strongest creditworthiness relative to other municipal or tax-exempt issuers or issues.

##### **Aa**

Issuers or issues rated Aa demonstrate very strong creditworthiness relative to other municipal or tax-exempt issuers or issues.

##### **A**

Issuers or issues rated A present above-average creditworthiness relative to other municipal or tax-exempt issuers or issues.

##### **Baa**

Issuers or issues rated Baa represent average creditworthiness relative to other municipal or tax-exempt issuers or issues.

##### **Ba**

Issuers or issues rated Ba demonstrate below-average creditworthiness relative to other municipal or tax-exempt issuers or issues.

##### **B**

Issuers or issues rated B demonstrate weak creditworthiness relative to other municipal or tax-exempt issuers or issues.

##### **Caa**

Issuers or issues rated Caa demonstrate very weak creditworthiness relative to other municipal or tax-exempt issuers or issues.

##### **Ca**

Issuers or issues rated Ca demonstrate extremely weak creditworthiness relative to other municipal or tax-exempt issuers or issues.

##### **C**

Issuers or issues rated C demonstrate the weakest creditworthiness relative to other municipal or tax-exempt issuers or issues.

*Note: Moody's appends numerical modifiers 1, 2, and 3 to each generic rating category from Aa through Caa. The modifier 1 indicates that the issuer or obligation ranks in the higher end of its generic rating category; the modifier 2 indicates a mid-range ranking; and the modifier 3 indicates a ranking in the lower end of that generic rating category.*

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**Author**

*Maria Matesanz*

**Associate Analyst**

*Omar Ouzidane*

**Production Specialist**

*Cassina Brooks*

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