MOODY'S INVESTORS SERVICE

RATING METHODOLOGY

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Contacts

Cintia Nazima +1.212.553.1631
AVP - Analyst
cintia.nazima@moodys.com

Adrian Garza, CFA +52.55.1253.5709
VP-Sr Credit Officer
adrianjavier.garza@moodys.com

Qingqing Guo +86.21.2057.4093
AVP-Analyst
qingqing.guo@moodys.com

John Medina +1.212.553.3604
VP-Sr Credit Officer
john.medina@moodys.com

Ralph Ng +852.3758.1530
VP-Senior Analyst
ralph.ng2@moodys.com

» *Contacts continued on last page*

Rating Methodology

Publicly Managed Toll Roads and Parking Facilities

This rating methodology replaces the *Publicly Managed Toll Roads and Parking Facilities* methodology published in March 2019. We have reordered and have made editorial updates to various sections of the methodology. These updates do not change our methodological approach.

Scope

This methodology applies to debt supported by publicly owned and operated toll road authorities and enterprises globally. These entities are primarily* engaged in operating and, in most cases, owning toll roads or related facilities, such as bridges and tunnels, and they earn revenue from the collection of tolls and related fees. Publicly managed toll roads do not operate under a profit-maximization business model. Instead, they typically set tolls at a level that will be sufficient to cover current or expected costs for operations and maintenance (O&M), expected capital requirements and debt service, as well as to meet the covenants in their financing documents. The primary purpose of these entities is to provide transportation infrastructure at a reasonable cost to users.

This methodology also applies to debt supported by publicly owned and operated parking facilities, where the primary source of revenue is the collection of parking fees.[1] These facilities range from on-street parking to large-scale parking garages.

Toll roads that are privately owned or operated are rated using our methodology for privately managed toll roads.[2] Any percentage of private ownership would cause an issuer to be rated as a privately managed toll road. The government-owned and operated model differs fundamentally from that of privately managed toll roads because privately managed toll roads have at least some profit motive. In addition, some toll roads are financed through a public-private partnership model and would be rated using our methodologies for public-private partnerships (P3/PPP/PFI).

Privately managed parking facilities are also rated using separate methodologies, depending on whether they are structured on a corporate finance model or a project finance model.

*The determination of an issuer's primary business is generally based on the preponderance of the issuer's business risks, which are usually proportionate to the issuer's revenues, earnings and cash flows.

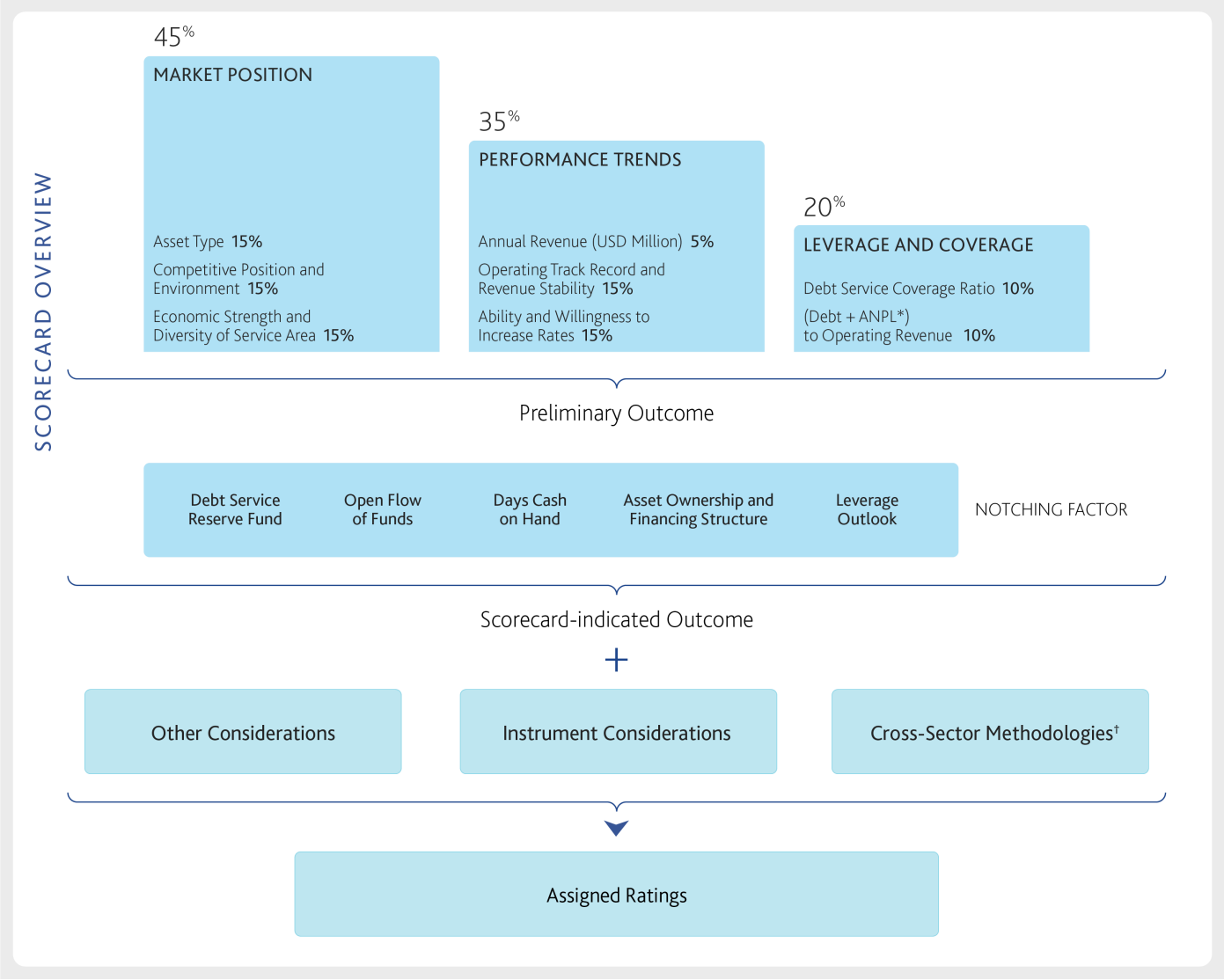
Rating approach

In this rating methodology, we explain our general approach to assessing credit risk of issuers in the publicly managed toll roads and parking facilities sector globally, including the qualitative and quantitative factors that are likely to affect rating outcomes in this sector. We seek to incorporate all material credit considerations in ratings and to take the most forward-looking perspective that visibility into these risks and mitigants permits.

The following schematic illustrates our general framework for the analysis of publicly managed toll roads and parking facilities, which includes the use of a scorecard.[3] The scorecard-indicated outcome is not expected to match the actual rating for each issuer. For more information, see the "Other considerations" and "Limitations" sections.

Exhibit 1

Illustration of the publicly managed toll roads and parking facilities methodology framework



* Adjusted net pension liability

† Some of the methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

Source: Moody's Investors Service

Publicly managed toll roads and parking facilities scorecard

For general information about how we use the scorecard and for a discussion of scorecard mechanics, please see the "Using the scorecard to arrive at a scorecard-indicated outcome" section. The scorecard does not include or address every factor that a rating committee may consider in assigning ratings in this sector. Please see the "Other considerations" and "Limitations" sections.

Exhibit 2

Publicly managed toll roads and parking facilities scorecard

	Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Factor: Market Position (45%)									
Asset Type	15%	Large multi-asset state- or province-wide network of essential toll roads, bridges or parking assets; or toll road is a critical link for major economic hubs or metropolitan areas.	Multi-asset state- or province-wide network of essential toll roads, bridges or parking assets.	Single-asset or small regional multi-asset network of essential toll road(s), bridge(s) or parking asset(s).	Single asset or small regional multi-asset; somewhat essential.	Single asset or small multi-asset; limited essentiality.	Small single asset; questionable essentiality.	Small single asset; highly questionable essentiality.	Small, single asset; nonessential.
Competitive Position and Environment	15%	**Toll Roads:** Extremely strong, well-established and stable competitive position; and limited to no competition from alternative transport modes (including rail, air and other roads/bridges). **Parking Facilities:** Extremely strong, well-established and stable competitive position with favorable location(s), distinct pricing advantage and limited to no competition.	**Toll Roads:** Very strong, well-established and stable competitive position; and other existing routes pose limited competitive threat even in times of economic stress due to sufficient distance or because they are of lower quality, and no significant enhancements expected to alternative transport modes (including rail, air and other roads/bridges). **Parking Facilities:** Very strong, well-established and stable competitive position with competitive pricing; and no significant enhancements expected to alternatives; and other available parking poses a limited competitive threat even in times of economic stress due to location, price or quality.	**Toll Roads:** Strong competitive position; preferred route/crossing; existing alternative transport modes (including rail, air and other roads/bridges) are of good quality and reasonable proximity and are likely to attract some traffic in times of economic stress or to easily absorb some of the growing traffic in the area. **Parking Facilities:** Strong competitive position; preferred location(s) with competitive pricing; existing alternatives are expected to attract demand in times of economic stress or to easily absorb some of the demand in the area.	**Toll Roads:** Moderately strong competitive position, or the issuer's competitive position is favorable but still developing; somewhat preferred route/crossing; existing alternative transport modes (including rail, air and other roads/bridges) are of high quality and close proximity or are expected to be upgraded and to attract some traffic in times of economic stress or to easily absorb growing traffic in the area. **Parking Facilities:** Moderately strong competitive position, or the issuer's competitive position is favorable but still developing; somewhat preferred location(s) and on-market pricing; existing alternatives are of comparable quality or are expected to be upgraded and to likely attract some demand in times of economic stress or to easily absorb demand in the area.	**Toll Roads:** Moderately weak competitive position, or the issuer's competitive position is still developing; somewhat preferred route/crossing; existing alternative transport modes (including rail, air and other roads/bridges) have ample capacity to easily attract traffic in times of economic stress. **Parking Facilities:** Moderately weak competitive position; somewhat preferred location(s) and on-market pricing; existing alternatives have ample capacity to easily attract demand in times of economic stress, or near-term decline in demand is expected when new alternatives open.	**Toll Roads:** Weak competitive position, or competitive environment is eroding the issuer's current traffic trends; or the competitive environment is changing and a significant negative impact on traffic is expected. **Parking Facilities:** Weak competitive position due to uncompetitive pricing; competitive environment is eroding the issuer's current demand trends; or a significant negative impact on parking demand is expected.	**Toll Roads:** Very weak competitive position, or traffic is significantly declining; or the competitive environment is changing and a very significant negative impact on traffic is expected. **Parking Facilities:** Very weak competitive position due to uncompetitive pricing; parking demand in the area is declining significantly; or the competitive environment is changing and a very significant negative effect on parking demand is expected.	**Toll Roads:** Extremely weak competitive position, or traffic declines are significant and rapid and expected to continue; or the competitive environment is changing rapidly and a very significant negative impact on traffic is expected in the near term. **Parking Facilities:** Extremely weak competitive position due to highly uncompetitive pricing; significant and rapid declines in parking demand in the area are expected to continue; or the competitive environment is changing rapidly, with a very significant negative effect on parking demand is expected in the near term.

	Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Factor: Market Position (45%)									
Economic Strength and Diversity of Service Area	15%	Very large, highly developed and very diversified economic base with very limited volatility (i.e., area encompasses one or more of the strongest economic centers/regions in a large country or very large province/state); and very robust, predictable demographic trends.	Large, highly developed and diversified economic base with limited volatility (i.e., area encompasses a strong, large economic center/region); and robust, predictable demographic trends.	Highly developed and diversified economic base with little volatility (i.e., area encompasses a strong economic center/region); mostly favorable demographic trends.	Developed and diversified economic base with moderate volatility (i.e., area is in close proximity to a strong economic center/region); slightly favorable demographic trends.	Developed and fairly diversified economic base but with some track record of economic downturns with protracted recoveries; slightly unfavorable demographic trends.	Weak economic base; a sizable concentration in a few industries/ sectors that are susceptible to economic shocks; unfavorable demographic trends.	Small, weak economic base; strong concentration in a few sectors with strong susceptibility to shocks; or highly unfavorable demographic trends.	Small, very weak or isolated economic base; highly concentrated in very vulnerable single industry or sector; or weak demographics and highly unfavorable demographic trends.
Factor: Performance Trends (35%)									
Annual Revenue (USD Million)[1]	5%	≥ $700	$200 - $700	$125 - $200	$50 - $125	$25 - $50	$10 - $25	$5 - $10	< $5
Operating Track Record and Revenue Stability	15%	Very long track record of tolled traffic/paid parking (>30 years) with stable demand and positive revenue trends; demand is unlikely to decline even in times of economic contraction; and no history of negative shocks.	Long track record of tolled traffic/paid parking (>20 years) with stable demand and stable revenue trends; and demand may decline temporarily and very modestly in times of economic contraction and is expected to recover fully and rapidly once economic conditions improve.	Track record of tolled traffic/paid parking (>10 years) with low demand volatility and primarily positive revenue trends; demand is likely to decline modestly in times of economic contraction and is expected to recover fully once economic conditions improve.	Limited track record of tolled traffic/paid parking (>5 years) or some track record of demand volatility but revenue growth is in line with or generally above expectations; demand may decline moderately in times of economic contraction and is expected to recover at a moderate pace.	Limited track record of tolled traffic/paid parking or track record of demand and revenue volatility; demand is likely to decline moderately in times of economic contraction and is expected to recover somewhat slowly.	Very limited track record of tolled traffic/paid parking or track record of highly volatile demand and revenue; or demand is likely to decline significantly in times of economic contraction, with a lengthy period of contraction or recovery.	Extremely limited track record of tolled traffic/paid parking or track record of significantly volatile demand and revenue; or demand is prone to irreversible shifts; or demand is likely to decline very significantly in times of economic contraction, with a lengthy period of contraction or recovery.	No track record of tolled traffic/paid parking or demand is expected to significantly and continuously decline; or demand is prone to irreversible shifts; or rapid and extreme declines in demand are expected in times of economic contraction, with uncertain contraction and recovery.

	Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Factor: Performance Trends (35%)									
Ability and Willingness to Increase Rates	15%	**Toll Roads:** Autonomous toll-setting by independent board or authority and automatic toll increase by legislative policy with very well established, consistent track record of implementation; Or independent, unfettered ability to adjust rates with track record of adjustments as needed; and no expectation of negative repercussions or interference. **Parking Facilities:** Autonomous rate-setting (i.e., automatic by policy with established, consistent track record of implementation) or independent, unfettered ability to adjust parking rates, with a track record of adjustments as needed; and no expectation of impediments to rate increases.	**Toll Roads:** Autonomous toll-setting by independent board or authority and automatic toll increase by legislative policy with well established, consistent track record of implementation; Or independent ability to adjust rates with track record of adjustments as needed; and no expectation of negative repercussions or interference. **Parking Facilities:** Autonomous rate-setting (i.e., automatic by policy with a somewhat consistent track record of implementation) or independent ability to adjust parking rates, with a track record of adjustments as needed; and no expectation of impediments to rate increases.	**Toll Roads:** Autonomous toll-setting by independent board or authority but non-automatic toll increase with some track record of adjustments as needed; and very limited expectation of negative repercussions or interference. **Parking Facilities:** Autonomous rate-setting (i.e., non-automatic rate increase by policy but parking authority can decide to adjust parking rates autonomously); a track record of adjustments as needed; no expectation of interference or negative repercussions.	**Toll Roads:** Autonomous toll-setting by independent board or authority but non-automatic toll increase with a mixed or limited track record of adjustments as needed; and limited expectation of negative repercussions or interference. **Parking Facilities:** Rate-setting subject to public owner approval and mixed record of adjustments; expectation of limited to no interference or negative repercussions.	**Toll Roads:** Non-autonomous toll-setting as toll-setting is subject to government approval or negotiation, with track record of delays or interference; or expectation of some negative repercussions or interference. **Parking Facilities:** Rate-setting subject to public owner approval, with a history of delays or interference; or expectation of some interference or negative repercussions.	**Toll Roads:** Non-autonomous toll-setting as toll-setting is subject to government approval, with short or no track record of increases and very uncertain ability to adjust tolls; or expectation of negative repercussions or interference. **Parking Facilities:** Rate-setting subject to public owner approval, with short or no track record of parking rate adjustments and very uncertain ability to adjust parking rates; or expectation of some material interference or negative repercussions.	**Toll Roads:** Non-autonomous toll-setting as toll-setting is subject to government approval and there is significant government interference in toll-setting, with highly inflexible ability to adjust tolls; or expectation of material negative repercussions or interference. **Parking Facilities:** Significant public owner interference in rate-setting, with highly inflexible ability to adjust parking rates; or expectation of material interference or negative repercussions.	**Toll Roads:** Non-autonomous toll-setting, as toll-setting is subject to government approval that is unable or unwilling to adjust tolls; or expectation of a continued inability to adjust tolls; or expectation of persistent and material negative repercussions or interference. **Parking Facilities:** Track record of inability or unwillingness to adjust parking rates; or expectation of continued inability to adjust parking rates; or material interference from public owner for the foreseeable future, with materially negative repercussions.

	Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Factor: Leverage and Coverage (20%)									
Debt Service Coverage Ratio[2]	10%	≥ 3x	2x - 3x	1.5x - 2x	1.25x - 1.5x	1.1x - 1.25x	1x - 1.1x	0.8x - 1x	< 0.8x
(Debt + ANPL) to Operating Revenue[3]	10%	≤ 2.5x	2.5x - 4x	4x - 5.5x	5.5x - 7x	7x - 8.5x	8.5x - 10x	10x - 15x	> 15x
Preliminary outcome									
Notching factor									
Debt Service Reserve Fund									
Open Flow of Funds									
Days Cash on Hand									
Asset Ownership and Financing Structure									
Leverage Outlook									
Scorecard-indicated outcome									

[1] For the linear scoring scale, the Aaa endpoint value is $1 billion. A value of $1 billion or better equates to a numeric score of 0.5. The Ca endpoint value is zero. A value of zero equates to a numeric score of 20.5.
[2] For the linear scoring scale, the Aaa endpoint value is 5x. A value of 5x or better equates to a numeric score of 0.5. The Ca endpoint value is 0x. A value of 0x equates to a numeric score of 20.5.
[3] For the linear scoring scale, the Aaa endpoint value is 0x. A value of 0x equates to a numeric score of 0.5. The Ca endpoint value is 30x. A value of 30x or worse equates to a numeric score of 20.5.
Source: Moody's Investors Service

Sector overview

Most publicly managed toll roads and parking facilities are public authorities or departments of a government, but some are organized as publicly owned corporations. These toll roads and parking facilities usually own their infrastructure or operate under a concession-like agreement granted in perpetuity; for some, the agreement has a finite term.

Most toll roads in the sector operate established facilities in mature markets, but others have significant construction and expansion projects to improve transportation infrastructure in accordance with traffic demand or public policy. For toll roads and parking facilities in this sector, once their facilities are established, these issuers are typically expected by the related government to be self-supporting. Some issuers are structured to have an open flow of funds, meaning that the excess funds may be used for other purposes by the public owner, whereas issuers structured with a closed flow of funds typically use excess cash flow to fund improvements only for their own roads or parking facilities, to build up cash reserves or to avoid raising tolls or fees (collectively, rates).

Rate-setting authority is an important characteristic. The entity that sets rates varies. Some issuers have the ability to set their own rates, although their own boards may have representation from other government entities, including elected officials or appointees. In some cases, rate increases are automatic based on inflation or a minimum annual percentage increase. Some issuers need approval of a separate state, local, regional or national government body, but their interests are often reasonably aligned with those of the issuer, a characteristic that distinguishes publicly managed toll roads from privately managed toll roads. The flexibility to increase rates also varies depending on whether rate increases are subject to autonomous board approval, a public hearing process, any additional approvals or requirements, or political interference.

US parking facilities, which are usually local in nature and transfer excess cash flow to their public owner on a monthly basis, after setting aside funds for operations and debt service, are often susceptible to a greater degree of input by the public owner in rate-setting decisions than an independent toll road authority. Both asset classes may face public resistance to rate increases and political pressure to keep rates at least steady, especially when the economy is weak.

In most cases, well-established public toll roads in major economic areas are considered essential to transportation within the areas they serve. Toll roads need substantial maintenance and can require major capital programs for structural rehabilitation, road surface maintenance, and traffic and tolling equipment upgrades. US parking facilities typically have lower capital expenditure requirements than US toll roads, and the dynamics of their essentiality are typically more local – including demand and competition from other parking facilities or other modes of transportation.

Discussion of the scorecard factors

In this section, we explain our general approach for scoring each scorecard factor or sub-factor, and we describe why they are meaningful as credit indicators.

Factor: Market Position (45% weight)

Why it matters

Market position is an important indicator of a toll road's or parking facility's competitive strength in attracting and maintaining demand. A core aspect of market position is the asset type. Toll roads or parking facilities that are larger and that operate in a strategic location are essential to the regions they serve and typically have more-predictable cash flow.

The competitive position and location of the toll road or parking facility are also meaningful considerations because they influence the extent to which existing roads or competition from alternative transport modes could cause demand and revenue to decline. In addition, the economic strength and diversity of the service area are indicators of an issuer's exposure to risks, such as declines in traffic or parking demand owing to job losses in a particular industry.

Issuers with stronger credit profiles tend to own or operate critical infrastructure assets, such as large, state-wide or province-wide multi-asset systems with long-established operating histories and limited competition. At the lower end of the ratings spectrum, issuers typically operate small assets (e.g., a single bridge or a single parking garage) in sparsely populated areas and tend to have lower flexibility to adjust rates. Issuers that own or operate new assets with unproven demand or that face high levels of competition from free or price-competitive alternatives also tend to have weaker credit profiles.

How we assess it for the scorecard

Scoring for this factor is based on three sub-factors: Asset Type; Competitive Position and Environment; and Economic Strength and Diversity of Service Area.

ASSET TYPE:

We assess this sub-factor based on the size of the asset and how essential it is to users. Asset types range from large multi-asset, state or province-wide networks of essential toll roads, bridges or parking facilities to small single assets that provide nonessential routes or parking.

Large, multi-asset state or province-wide toll road systems that provide an essential transport service or serve as critical links in major economic hubs or metropolitan areas typically have higher scores for this sub-factor than smaller regional systems, or assets that are less essential to the region's economy and transportation needs. Similarly, an owner or operator of a single parking asset that serves a vibrant central business district or a major transportation hub such as a downtown commuter train station would typically receive a higher score for this sub-factor than an owner or operator of a single parking asset in a low-density suburban area.

COMPETITIVE POSITION AND ENVIRONMENT:

We assess the toll road's or parking facility's proximity to competing facilities and other modes of transport, such as rail, air, or other roads and bridges, and to free or price-competitive alternatives. We also consider the relative quality of these alternatives.

For example, we typically consider the capacity of alternative routes or parking to absorb additional demand. For alternative multi-modal transportation or mass transit systems, we may consider their capacity, their location and the extent of their service offerings. We also may consider the likely negative impact of existing or expected enhancements to nearby alternatives. A toll road or parking facility that has a dominant market position in a particular region due to a lack of comparable alternatives (e.g., a major bridge crossing or sole provider of parking in a region) or due to inferior or more-expensive alternatives (e.g., lowest-cost provider of parking in a central business district) typically has a higher score for this sub-factor than one with limited essentiality. Conversely, a toll road or parking facility may score lower on this sub-factor due to likely changes in its competitive environment, such as the construction of a new free parallel highway or a free neighboring parking garage that is expected to attract traffic or parking demand.

In addition to the location of alternative parking facilities, we also consider the price competitiveness of a parking facility. A distinct pricing advantage greatly increases the parking facility's ability to attract and retain demand. Publicly owned parking facilities usually have some competitive pricing advantage over privately owned lots, given their typical objective to keep prices affordable rather than to maximize profits.

ECONOMIC STRENGTH AND DIVERSITY OF SERVICE AREA:

We assess this sub-factor qualitatively by considering the economic strength, diversity and volatility of an issuer's service area based on socioeconomic indicators, typically including demographic and income trends, the size of the region's economic base, and its economic diversity or concentration. An area with strong and stable demographics, encompassing or within close proximity to one or more of the strongest economic centers or regions in a large state or country, typically results in a higher score for this sub-factor. Conversely, an area with a small, poor and isolated economic base with limited diversification and weak or unfavorable demographic trends typically results in a lower score for this sub-factor.

Factor: Performance Trends (35% weight)

Why it matters

A toll road's or parking facility's annual revenue, operating track record and revenue stability, and its ability and willingness to increase rates are important indicators of future performance and resiliency through future economic downturns.

A higher revenue base is a strong indicator of demand and can be an indicator of greater resilience to economic downturns. For toll roads, which may account for transactions differently (e.g., at each entry point versus at each tolling gantry), as well as for parking facilities (e.g., long-stay parking versus short-stay parking), revenue provides a basis for more even peer comparisons. For example, a smaller issuer that is competitively positioned in a favorable service area but with fewer transactions may generate more revenue than a larger issuer in a less favorable economic service area with more transactions.

A long operating history and a track record of revenue stability are important indicators of a toll road's or parking facility's capacity to attract and retain users through economic cycles. The willingness to increase rates when needed is a critical indication of a toll road's or parking facility's ability to maintain a sound financial profile. Also, a track record of implementing rate increases can be an indicator of the likelihood of future increases.

How we assess it for the scorecard

Scoring for this factor is based on three sub-factors: Annual Revenue; Operating Track Record and Revenue Stability; and Ability and Willingness to Increase Rates.

ANNUAL REVENUE:

This sub-factor is measured (or estimated in the case of forward-looking expectations) based on total reported annual revenue in millions of US dollars. For new toll roads or parking facilities in either the ramp-up or construction phase, our estimate is based on our expectation for steady-state revenue following ramp-up and completion (please see the "Other considerations" section).

OPERATING TRACK RECORD AND REVENUE STABILITY:

We assess this sub-factor qualitatively by considering the asset's length of time in operation together with historical demand and revenue trends. Toll roads and parking facilities with higher scores for this sub-factor typically demonstrate stable demand and positive revenue trends; they also usually have a limited history of declining demand and revenues are either resilient to economic cycles or recover quickly. Toll roads and parking facilities with lower scores for this sub-factor tend to have no track record of tolled traffic or paid parking, or have reported significant declines in demand or revenues that are expected to persist.

In assessing the track record for greenfield toll roads or parking facilities, we would typically consider the traffic and toll patterns on existing nearby roads or the current and forecast market for parking in the area. For greenfield toll roads or parking facilities, scores for this sub-factor typically do not exceed Ba.

In assessing the stability of demand and revenue, we typically consider recent operating history, including the most recent five years of data. We also typically consider performance over longer periods to assess demand and revenue fluctuations and overall resiliency through economic cycles, including the speed of recovery following economic downturns.

In cases where a mature toll road or parking facility reports unusually high transaction growth or demand, we typically consider the sustainability of this growth and demand over time. While higher levels of growth are generally expected for new toll roads and parking facilities in the initial ramp-up phase and during the early years of operation, it is not necessarily indicative of a sustainable long-term pattern or a predictor of the toll road's or parking facility's resiliency through economic cycles. Some parking facilities have a maximum level of demand they can handle given space constraints, and revenue growth in these cases is primarily driven by rate increases.

ABILITY AND WILLINGNESS TO INCREASE RATES:

In scoring this sub-factor, we assess qualitatively the issuer's ability and willingness to increase rates, i.e. tolls or parking fees. Issuers with higher scores for this sub-factor tend to have a track record of autonomous toll- or fee-setting ability, which may be automatic by legislative policy that is transparent, formulaic and tied to an economic index, or have an independent and unfettered ability to increase rates as needed with no expectation of impediments to increases. In these cases, autonomous rate setting is handled by the toll road's board or an authority that is largely independent of the general government and thus has a degree of insulation from political interference. Where a separate governmental authority (such as a commission dedicated to overseeing tolls or fees, a legislative body or, for toll roads, the public owner) sets rates or can interfere with setting them, we typically consider the relationship of this entity to the issuer, how well their interests align, and the history and predictability of decision-making. Issuers with lower scores for this sub-factor typically lack a clear and independent ability to set rates, and the governing authority's track record demonstrates an unwillingness to increase rates (e.g., because of unfavorable socioeconomic conditions or for political reasons) or a history of negative repercussions or interference with rate increases. Repercussions or interference can stem from individual users, the business community or political representatives.

We may also consider the affordability of rates and the impact that an increase in tolls or parking fees could have on demand, because even autonomous rate-setting is subject to economic limits. While price elasticity varies based on asset type and service area, sudden toll or fee increases for even an established asset could have a negative impact on demand and revenues.

Factor: Leverage and Coverage (20% weight)

Why it matters

Leverage and coverage measures are critical indicators of a toll road's or parking facility's financial flexibility and long-term viability, including the ability to adapt to changes in the economic and business environments in which it operates. All else being equal, leverage and coverage metrics provide indications of an issuer's financial flexibility, ability to withstand lower revenue or higher costs and the ability to generate sufficient cash flow to support operations, meet debt-service obligations and maintain assets over the long term.

The factor comprises two sub-factors:

Debt Service Coverage Ratio

The debt service coverage ratio (DSCR) is an indicator of an issuer's annual cash flow in relation to its annual debt service expense. An issuer that maintains a high DSCR with a comfortable excess coverage margin is typically better able to withstand cyclical declines in demand or short-term cash flow disruptions.

Debt to Operating Revenue

The ratio of debt to operating revenue is an indicator of a toll road's or parking facility's ability to repay debt while continuing to fund capital projects necessary to sustain a competitive standing, and it is an indicator of debt serviceability.

How we assess it for the scorecard

Scoring for this factor is based on two sub-factors: Debt Service Coverage Ratio; and Debt to Operating Revenue.

DEBT SERVICE COVERAGE RATIO:

The numerator is annual revenue minus operating expenses (excluding depreciation and amortization),[4] and the denominator is total annual debt service obligations (for all liens). For toll roads or parking facilities that have monthly budgeted or contractual distributions that are not already included in debt service, we include those transfers in the operating expenses. Operating expenses are adjusted for annual cash contributions to pensions and other post-employment benefit (OPEB) contributions.

DEBT TO OPERATING REVENUE:

The numerator is total debt plus adjusted net pension liabilities (ANPL),[5] and the denominator is annual operating revenue. Our calculation or estimate of ANPL is typically based on the issuer's pension disclosures. In cases where pension information is disclosed only at the level of the corresponding government (e.g. by the state's transportation authority), we typically attribute a proportionate amount of the government's ANPL to the toll road or parking enterprise based on its share of compensation expenses or the number of its employees as a percentage of the total. When there is no sufficient information to estimate the ANPL, typically when it is immaterial, we do not include it in the ratio and assess any pension-related credit risk outside of the scorecard.

Notching factors

The scorecard incorporates several notching factors that may result in upward or downward adjustments in half-notch increments to the preliminary outcome resulting from the three weighted factors. While the weighted factors and sub-factors comprise many of the key rating drivers for publicly managed toll roads and parking facilities, the wide-ranging variations incorporated into a toll road's or parking facility's organizational structure and its financing structure are another important area of our credit analysis.

In the discussion that follows, we provide the typical range of potential notching for each of these notching factors. In aggregate, these factors can result in a total of up to two upward notches or up to six downward notches from the preliminary outcome to arrive at the scorecard-indicated outcome. In individual cases where we consider that the credit weakness or credit strength represented by a notching factor, or by these factors in aggregate, is greater than the scorecard range, we incorporate this view into the issuer's rating, which may be different from the scorecard-indicated outcome.

Debt Service Reserve Fund (DSRF)

Why it matters

Available financial reserves are a fundamental consideration because of their importance in providing an issuer with the ability to withstand periodic disruptions in revenue due to unforeseen circumstances, including operational and performance issues or financial market disruptions.

How we assess it for the scorecard

DEBT SERVICE RESERVE FUND (DSRF):

A DSRF that covers fewer than 12 months of debt service typically results in a one-half to one-notch downward adjustment to the preliminary outcome (see the table below). A DSRF that covers less than 12 months of debt service but more than six months typically results in a downward adjustment of one-half notch, and reserves that cover less than six months of debt service typically result in a one-notch downward adjustment.

In the US, a standard feature for toll roads and parking facilities is typically the inclusion of a 12-month DSRF funded with dedicated cash or supported by a committed, unconditional letter of credit or surety bond from a highly rated bank or surety provider, or a DSRF that meets the standard three-pronged test.[6] We typically apply downward notching for DSRFs that are supported by letters credit or surety bonds that are not provided by highly rated financial institutions.

There can be regional variations in the availability and usual structure of liquidity arrangements. For publicly managed toll roads or parking facilities outside the US, we typically apply similar downward adjustments, absent any other mechanisms that may serve as an assured liquidity cushion in a period of financial stress.

Exhibit 3

Notching factor: Debt Service Reserve Fund

-1.0 Notch	-0.5 Notch	0 Notch
DSRF covers fewer than six months of debt service, or is primarily non-cash funded by a surety provider of lower credit quality.	DSRF covers less than 12 months of debt service but more than six months, or a significant portion is non-cash funded by a surety provider of lower credit quality.	DSRF covers 12 months of debt service.

Source: Moody's Investors Service

Open Flow of Funds

Why it matters

A toll road or parking facility that is organized to have an open flow of funds is permitted to make external transfers to its public owner in order to fund unrelated public owner spending, and it may incur debt to finance projects unrelated to its core activities. In a closed flow of funds, excess cash generated by the issuer can essentially only be used to make improvements in the facilities, maintain stable or decrease rates, repay debt or build up cash reserves. An open flow of funds is an important consideration because toll roads or parking facilities that are under pressure from their public owners to make such transfers may need to raise rates more frequently, and at higher percentages, which may attract political scrutiny and resistance to future rate increases. Outflows without offsetting rate increases may also weaken an issuer's credit standing because they can lead to weaker financial metrics, deferred maintenance and additional borrowing. Annual transfers have been more common for parking facilities than for toll roads.

How we assess it for the scorecard

In assessing the notching for open flow of funds, we incorporate our forward view of the likely credit impact to the extent not already captured in other aspects of the scorecard. We may also consider the timing and nature of the transfer obligation. Some transfers are purely discretionary, some are part of a monthly budget agreed with a supervisory board, and others are contractual.

An open flow of funds can have up to one notch of negative impact on the preliminary outcome in the scorecard (see table), depending on the level of control or limitations that the issuer has over the transfers. If the transfers are at the sole discretion of the issuer and are limited by governing board policy or guidelines, we typically limit the downward adjustment to one-half notch. If the transfers are at the discretion of a separate governmental entity, we typically adjust the preliminary outcome downward by one notch. We also

consider the materiality of the transfer. For example, we typically consider that an annual contractual obligation of a material amount warrants a whole downward notch.

While the scorecard impact is limited to one downward notch, the full risk posed by an open flow of funds is reflected in our ratings, which may cause the scorecard outcome to be different from the assigned rating. In these cases, the credit profile of the public parent may be a relevant consideration in assigning ratings to a publicly managed toll road or parking facility.

Exhibit 4
Notching factor: Open Flow of Funds

-1.0 Notch	-0.5 Notch	0 Notch
Open Flow of Funds; material debt has been issued for non-system needs; or material transfers occur on a regular basis, e.g. monthly transfers or sweeps or a large annual transfer.	Open Flow of Funds, including issuers with a limited and manageable annual transfer or where the issuer has the ability to transfer funds to the owner, but has infrequently used it (including issues debt for other purposes).	Closed Flow of Funds

Source: Moody's Investors Service

Days Cash on Hand

Why it matters

The presence of large and readily accessible liquidity helps issuers manage through periods of financial stress and ultimately supports credit quality. Cash and investments that are free from external restrictions or that can be readily liquidated are important considerations for assessing an issuer's near-term ability to meet unexpected expenses. When the capacity to promptly raise rates is limited, toll roads or parking facilities principally rely on unrestricted cash and investments to fund unexpected operating and maintenance (O&M) costs (e.g., due to severe winter weather) or to reduce debt-financing by funding capital projects on a pay-as-you-go basis.

How we assess it for the scorecard

We use days of cash on hand as a proxy for estimating the amount of unrestricted cash available to issuers to manage unforeseen demand shocks and revenue disruptions or higher expenses. This notching factor may result in an upward or downward adjustment of up to one notch (see table).

The formula for days cash on hand is as follows:

(Unrestricted Cash and Investments + Discretionary Reserves)*365 / (Total Operating Expenses – Depreciation and Amortization)

For toll roads or parking facilities that have monthly budgeted or contractual distributions, we typically include those transfers in the operating expenses.

In the numerator, we typically take into account cash or investments that are not restricted for other purposes (e.g., we exclude DSRF). We exclude cash drawn from credit facilities. Unrestricted investments are investments that we consider free from external restrictions and that can be liquidated in a timely manner. We also include discretionary reserves . Funds that are restricted or set aside for specific projects are not included and neither are bond proceeds that are committed to specific construction projects. Uncommitted bond proceeds may be included if they are clearly uncommitted and available for use at the discretion of the toll road or parking facility.

Exhibit 5
Notching factor: Days Cash on Hand

-1.0 Notch	-0.5 Notch	0 Notch	+1.0 Notch
< 183 days cash on hand	≥ 183 days cash on hand < 365	≥ 365 days cash on hand < 730	≥ 730 days cash on hand

Source: Moody's Investors Service

In some instances, toll roads or parking facilities may have access to committed credit facilities (including letters of credit, but excluding facilities that support DSRFs). In cases where we consider these lines to represent meaningful on-demand liquidity, they

may partially offset the lack of a full 365 days cash on hand. In such cases, we typically adjust the notching qualitatively to reflect this additional liquidity.

In assessing whether these credit facilities mitigate a low number of days cash on hand, we typically consider the amount of unused capacity as well as the possible restrictions to accessing this liquidity. To be considered on-demand liquidity, we typically expect the credit provider(s) to be highly rated and the access to the facility to be timely and free from restrictions. Examples of possible restrictions include Material Adverse Change or Material Adverse Litigation clauses, covenants that materially constrain additional borrowing, or a short tenor of committed drawdown availability.

Our assessment of the likelihood of access to the credit line may also consider the relationship between the credit provider and the toll road or parking facility. For example, all else being equal, we may consider credit lines extended by banks owned or controlled by government(s) that have a strategic incentive to support the public toll road or parking facility to be a stronger form of readily accessible liquidity than facilities provided by private entities or by public lenders lacking a strategic incentive to support.

Asset Ownership and Financing Structure

Why it matters

An issuer that owns the toll road or parking facility has greater operational and financing flexibility than one that operates the facility under a concession. Concessions can have different terms, adding complexity to the toll road's operations and adding uncertainty to future financial results.

A toll road or parking facility may have characteristics that could increase the risk that cash flows generated will not be sufficient to meet debt repayment obligations on time. For example, a front-loaded or rapidly amortizing debt structure may produce weaker financial metrics in the near term than a back-loaded debt structure, but may better match cash flows. Conversely, a back-loaded debt structure may result in stronger financial metrics in the near term, but may increase longer-term debt-repayment risks due to lower predictability of future traffic volumes and cash flows, in particular when the issuer is operating the asset under a limited time concession.

How we assess it for the scorecard

In assessing this notching factor, we consider whether the debt is front-loaded, back-loaded or non-amortizing; whether there is exposure to unhedged variable-rate debt, demand obligations or interest-rate swaps; and whether there are debt maturities beyond finite concessions with uncertain prospects for renewal.

We typically assess the exposure to unhedged variable-rate demand obligations and interest-rate swaps, particularly for toll roads or parking facilities with low preliminary scorecard outcomes. We may consider the exposure relative to available internal and external liquidity, immediate termination events, cross-default provisions, and situations in which a toll road or parking facility is required to post collateral. Downward scorecard notching for variable-rate exposure is limited to one notch, but where that exposure is severe, the assigned rating may be lower than the scorecard-indicated outcome.

Where the issuer operates under a concession, we typically consider any operational, maintenance and capital spending requirements within the concession period. Some toll roads or parking facilities may have finite concession lives. In these cases, we typically consider the terms for the transfer back to the concession grantor, e.g., whether the grantor can reclaim the asset without compensation or must pay compensation to the concessionaire and whether any termination payment will cover the debt outstanding. We also consider the likelihood that the concession will be renewed. We typically notch downward by one or more notches if there is debt maturing beyond the concession term. Up to three downward notches in the scorecard may apply in the case of a toll road or parking facility with material debt maturing outside the term of a finite concession with uncertain prospects of renewal. In cases where this risk is severe, the assigned rating may be lower than the scorecard-indicated outcome.

Exhibit 6

Notching factor: Asset ownership and financing structure

-3.0 Notches	-2.0 Notches	-1.0 Notch	-0.5 Notch	0 Notch
Debt maturity beyond finite concession with uncertain prospects for concession renewal.	Extremely back-loaded or non-amortizing debt structure; debt maturity beyond finite concession with moderate prospects for concession renewal.	Back-loaded debt structure; debt maturity beyond finite concession with good prospects for concession renewal; or material unhedged exposure to variable-rate debt or derivatives.	Somewhat back-loaded debt structure; some unhedged exposure to variable-rate debt or derivatives.	No back-loaded or non-amortizing debt; no unhedged exposure to variable-rate debt or derivatives.

Source: Moody's Investors Service

Leverage Outlook

Why it matters

The potential for a toll road or parking facility to issue additional debt to finance asset maintenance or new capital projects that will increase capacity and revenue growth is an important consideration in assessing its credit profile. Underfunding of asset maintenance threatens a toll road's or parking facility's competitiveness and operating capacity. Realistic annual capital budgets based on a multi-year capital improvement plan are important for maintaining assets with minimal-to-limited credit impact.

How we assess it for the scorecard

We typically consider the size and scope of a toll road's or parking facility's annual and multi-year capital improvement plans relative to the condition of its assets and its financing plans, and the impact of these plans on future debt levels.

For example, if a toll road or parking facility has large upcoming capital projects either intended for improvement or expansion that will require increased leverage that is expected to reduce its financial flexibility, we would typically apply a negative notching adjustment. Similarly, if a toll road or parking facility continues to defer sizable and necessary maintenance projects, we assess the rationale for such deferral and the potential for disrupted operations, large expenditures and increased leverage in the future that may negatively affect credit quality.

We also typically assess the strategic and economic rationale for the capital expenditures and whether the projects address deferred asset maintenance, maintain the asset's condition, alleviate congestion or expand capacity. We also consider views provided by third party technical consultants that evaluate the condition of the assets. The implications of the capital program on future demand and revenue generation are also typically part of our assessment.

Increased borrowing does not always have a negative effect on credit quality. Debt-financed projects that increase capacity or improve user access are likely to improve an issuer's market position, increase revenues and are less likely to have a negative credit impact, provided the issuer is able to comfortably manage the increased debt service costs.

Exhibit 7

Notching factor: Leverage Outlook

-2.0 Notches	-1.0 Notch	-0.5 Notch	0 Notch
Very large capital projects for improvement or expansion and increased leverage over short to medium term that cannot be reduced by ongoing or future expected cash flows, except over the long term; or very significant deferral of sizable and necessary maintenance projects is expected to continue over medium term.	Large capital projects for improvement or expansion and increased leverage over medium to long term expected to limit financial flexibility (i.e., liquidity, DSCR or covenant restrictions); or significant deferral of sizable and necessary maintenance projects is expected to continue over medium term.	Fairly large capital investment and increased leverage over medium term are expected to somewhat limit financial flexibility (i.e., liquidity, DSCR or covenant restrictions); or some deferral of necessary maintenance projects is expected to continue over medium term.	Medium-term capital investment and leverage are expected to be offset by growing resources.

Source: Moody's Investors Service

Other considerations

Ratings may reflect consideration of additional factors that are not in the scorecard, usually because the factor's credit importance varies widely among the issuers in the sector or because the factor may be important only under certain circumstances or for a subset of issuers. Such factors include financial controls and the quality of financial reporting; legal structure; the quality and experience

of management; assessments of governance as well as environmental and social considerations; exposure to uncertain concession 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.

Following are some examples of additional considerations that may be reflected in our ratings and that may cause ratings to be different from scorecard-indicated outcomes.

Construction and Ramp-Up Risk

In assessing the credit profile of a start-up toll road or parking facility, we consider the incremental risk posed by construction or ramp-up to full operations, as well as the principal mitigants for these risks. We typically assess construction complexities and the possibility for cost overruns or delays, contractual mitigants and available liquidity.

In terms of construction complexity, we typically view greenfield construction of a new toll road alignment as having lower complexity than a new construction within the medians of existing roads, or construction that involves a high degree of integrating or planning around existing infrastructure, such as crossings over busy intersections, or physical barriers. Important considerations for assessing the level of construction risk associated with a project include: the construction site and alignment, necessary easements, required construction permits and other regulatory approvals, soil, geotechnical and structural complexity, management's experience in construction oversight, the terms of the construction contract, the ability to replace the contractor on similar commercial terms and the contractor's experience as well as its credit quality and the performance security posted. We typically consider the general guiding principles discussed in our methodology for privately financed public infrastructure projects (PFI/PPP/P3)[7] in the construction period to help assess the magnitude of construction risk.

In assessing factors in the scorecard in the context of ramp-up risk, our assessment is based on a forward-looking view. For example, our assessment of Operating Track Record and Revenue Stability is informed by assumptions of traffic capture rates and growth forecasts for a new toll road, based on available data on traffic patterns in the region or corridor. In order to compare the demand profile, trends and financial operations for start-up toll roads and parking facilities with those of established toll roads or parking facilities, we typically develop a base case of expected demand and a revenue forecast. We may also consider stress scenarios to incorporate uncertainty in achieving the base case, because demand and revenue forecasts are complex and dependent on many variables. These projected metrics, along with the other scorecard factors and sub-factors, inform our assessment of a start-up issuer's ability to support planned debt relative to established issuers.

In most cases, start-up issuers, or issuers with projects under construction, which lack long and stable operating track records of demand and revenue, tend to have weaker credit profiles than established issuers.

Traffic Profile

The traffic profile and revenue composition of a toll road may make it more or less resilient to downturns in the economy and can affect the pace and extent of recovery. Toll roads with a significant level of daily commuter traffic are generally more resilient to traffic declines during economic downturns than toll roads with a significant level of commercial vehicle traffic or toll roads with a heavy component of leisure traffic. Commercial traffic can account for a substantial portion of a toll road's total revenue, due to the typically higher tolls charged, which amplifies the impact on revenues when commercial traffic declines.

Management Strategy

The quality of management is an important factor supporting an issuer's credit strength. Assessing the execution of business plans and capital 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. Management's track record of adhering to stated plans, commitments and guidelines provides insight into management's likely future performance, including in stressed situations.

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 the proper tone at the top, centralized operations, and consistency in accounting policies and procedures. Auditors' reports on the effectiveness of internal controls, auditors' comments in financial reports and unusual restatements of financial statements or delays in regulatory filings may indicate weaknesses in internal controls.

Liquidity

As discussed in the "Notching factors" section, liquidity is an important consideration for all toll roads and parking facilities. Liquidity can be particularly important for lower-rated issuers and start-ups, which typically have more ramp-up risk and less operating and financial flexibility. We typically assess likely near-term liquidity requirements, considering both the sources and uses of cash. We may also consider legal covenants and the issuer's cushion of compliance to assess whether the issuer is likely to require covenant relief in the event of a downturn in traffic or an issuer-specific decline in performance. For a description of general principles related to assessing liquidity, please see our liquidity cross-sector methodology.[8]

Additional Metrics

The metrics included in the scorecard are those that are generally most important in assigning ratings to issuers in this sector; however, we may use additional metrics to inform our analysis of specific toll roads or parking facilities. These additional metrics may be important to our forward view of metrics that are in the scorecards or other rating factors.

Event Risk

We also recognize the possibility that an unexpected event could cause a sudden and sharp decline in an issuer's fundamental creditworthiness, which may cause actual ratings to be lower than the scorecard-indicated outcome. Event risks — which are varied and can range from force majeure events, such as hurricanes, to permitting issues or changes in governing legislation or law — can overwhelm even a stable, well-capitalized issuer. Some other types of event risks include litigation, pandemics, significant cyber-crime events and unexpected distributions to a public issuer's owner.

Environmental, Social and Governance Considerations

Environmental, social and governance (ESG) considerations may affect the ratings of issuers in the publicly managed toll roads and parking facilities sector. For information about our approach to assessing ESG issues, please see our methodology that describes our general principles for assessing these risks.[9]

Toll roads and parking facilities are susceptible to changes in demand related to the regulation of the automotive and petroleum industries, with the potential that increases in the cost of purchasing or operating vehicles could lead to lower transaction levels. Vehicles are subject to a substantial degree of regulatory oversight, including consumer safety and environmental standards related to carbon dioxide and other emissions. As regulations in the automotive and petroleum industries increase in scope or where meaningful regional differences in regulation exist, they may have a differentiating impact on toll roads and parking facilities. Changes in technology, such as the commercialization of competitively priced low/no-emission vehicles, may mitigate the effect on demand for toll roads and parking facilities. Extreme weather events, like wildfires or hurricanes that result in flooding, can cause asset damage, in particular for assets located in coastal areas that may be more exposed to flooding due to sea level rise.

Our view of future regulations plays an important role in our expectations of future financial metrics and affects the scenario analyses we may undertake as well as our confidence level in the ability of an issuer to generate sufficient cash flows relative to its debt burden over the medium and longer term.

For issuers in this sector, we also consider social issues that could have a material impact, either positive or negative, on their ability to service debt. For example, we may consider demographic shifts such as high population growth that could lead to additional demand or the need for additional infrastructure, or an aging population that could lead to lower transportation demand in the future, barring technological advances (e.g., automated vehicles).

Seasonality

Seasonality is an important driver of traffic and higher volatility of demand creates less room for errors in operational execution. For example, leisure traffic is more susceptible to economic shocks than commuter traffic and may represent a substantial or majority component of total annual revenue for some issuers.

Parental Support

A parent government can provide ratings lift for particular issuers in the publicly managed toll roads and parking facilities sector if the parent is highly rated and the toll road is viewed to be of strategic importance to the parent. In our analysis of parental support, we consider whether the parent has the financial capacity and strategic incentives to provide support to the issuer in times of stress or financial need, or has already done so in the past. Conversely, if the parent puts a burden on the issuer for distributions or transfers,

which in turn reduces its flexibility, the ratings would reflect this risk (please see the "Open Flow of Funds" section above). For certain issuers, parental actions can have a negative impact on the issuer's rating. For example, limits or reductions in toll or parking rates, increased capital investment requirements and high transfers or distributions can have a negative effect on an issuer's credit profile.

Using the scorecard to arrive at a scorecard-indicated outcome

1. Measurement or estimation of factors in the scorecard

In the "Discussion of the Scorecard Factors" section, we explain our analytical approach for scoring each scorecard factor or sub-factor,[10] and we describe why they are meaningful as credit indicators.

The information used in assessing the sub-factors is generally found in or calculated from information in the company's financial statements or regulatory filings, derived from other observations or estimated by Moody's analysts. We may also incorporate non-public information.

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 a company's performance as well as for peer comparisons. Financial metrics, unless otherwise indicated, are typically calculated based on an annual or 12-month period. However, the factors in the scorecard can be assessed using various time periods. For example, rating committees may find it analytically useful to examine both historical and expected future performance for periods of several years or more.

The quantitative credit metrics may incorporate analytical adjustments that are specific to a particular issuer.

2. Mapping scorecard factors to a numeric score

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, also called alpha categories) and to a numeric score.

Qualitative factors are scored based on the description by broad rating category in the scorecard. The numeric value of each alpha score is based on the scale below.

Exhibit 8

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

Source: Moody's Investors Service

Quantitative factors are scored on a linear continuum. For each metric, the scorecard shows the range by alpha category. We use the scale below and linear interpolation to convert the metric, based on its placement within the scorecard range, to a numeric score, which may be a fraction. As a purely theoretical example, if there were a ratio of revenue to interest for which the Baa range was 50x to 100x, then the numeric score for an issuer with revenue/interest of 99x, relatively strong within this range, would score closer to 7.5, and an issuer with revenue/interest of 51x, relatively weak within this range, would score closer to 10.5. In the text or table footnotes, we define the endpoints of the line (i.e., the value of the metric that constitutes the lowest possible numeric score, and the value that constitutes the highest possible numeric score).

Exhibit 9

Aaa	Aa	A	Baa	Ba	B	Caa	Ca
0.5-1.5	1.5-4.5	4.5-7.5	7.5-10.5	10.5-13.5	13.5-16.5	16.5-19.5	19.5-20.5

Source: Moody's Investors Service

3. Determining the overall scorecard-indicated outcome

The numeric score for each sub-factor (or each factor, when the factor has no sub-factors) is multiplied by the weight for that sub-factor (or factor), with the results then summed to produce an aggregate numeric score before notching factors (the preliminary outcome). We then consider whether the preliminary outcome that results from the three weighted factors should be notched upward

or downward[11] in order to arrive at an aggregate numeric score after notching factors, based on Debt Service Reserve Fund, Open Flow of Funds, Days Cash on Hand, Asset Ownership and Financing Structure, and Leverage Outlook. In aggregate, the notching factors can result in a total of up to one upward notch or up to six downward notches from the preliminary outcome to arrive at the scorecard-indicated outcome.

Aggregate numeric scores before and after notching factors are mapped to an alphanumeric. For example, an issuer with an overall numeric score before notching factors of 11.7 would have a Ba2 preliminary outcome, based on the ranges in the table below. If the combined notching factors totaled two upward notches, the aggregate numeric score after notching factors would be 9.7, which would map to a Baa3 scorecard-indicated outcome.

Exhibit 10

Scorecard-indicated outcome

Scorecard-indicated outcome	Aggregate numeric score
Aaa	x ≤ 1.5
Aa1	1.5 < x ≤ 2.5
Aa2	2.5 < x ≤ 3.5
Aa3	3.5 < x ≤ 4.5
A1	4.5 < x ≤ 5.5
A2	5.5 < x ≤ 6.5
A3	6.5 < x ≤ 7.5
Baa1	7.5 < x ≤ 8.5
Baa2	8.5 < x ≤ 9.5
Baa3	9.5 < x ≤ 10.5
Ba1	10.5 < x ≤ 11.5
Ba2	11.5 < x ≤ 12.5
Ba3	12.5 < x ≤ 13.5
B1	13.5 < x ≤ 14.5
B2	14.5 < x ≤ 15.5
B3	15.5 < x ≤ 16.5
Caa1	16.5 < x ≤ 17.5
Caa2	17.5 < x ≤ 18.5
Caa3	18.5 < x ≤ 19.5
Ca	19.5 < x ≤ 20.5
C	x > 20.5

Source: Moody's Investors Service

In general, the scorecard-indicated outcome is oriented to the senior rating secured by a pledge on revenues. For issuers that benefit from rating uplift from parental support, government ownership or other institutional support, we consider the underlying credit strength or Baseline Credit Assessment for comparison to the scorecard-indicated outcome. For an explanation of the Baseline Credit Assessment, please refer to *Rating Symbols and Definitions* and to our cross-sector methodology for government-related issuers.[12]

Assigning issuer-level and instrument-level ratings

After considering the scorecard-indicated outcome, other considerations and relevant cross-sector methodologies, we typically assign a senior secured instrument rating (typically secured by revenue pledges). We may also assign ratings to other debt classes. Individual debt instrument ratings factor in decisions on notching for seniority level and collateral. We may also assign an issuer rating.

In some limited cases, we may consider that a publicly managed toll road operating under a concession may receive extraordinary support from a government. In these cases, we may assign a Baseline Credit Assessment and apply our methodology for government-related issuers.[13] Any ratings uplift related to the potential for extraordinary support from a government parent would normally be quite limited, because all issuers rated under this methodology are all publicly owned, and many of the benefits of public ownership are considered in the scorecard.

Key rating assumptions

For information about key rating assumptions that apply to methodologies generally, please see *Rating Symbols and Definitions*.[14]

Limitations

In the preceding sections, we have discussed the scorecard factors and many of the other considerations that may be important in assigning ratings. In this section, we discuss limitations that pertain to the scorecard and to the overall rating methodology.

Limitations of the scorecard

There are various reasons why scorecard-indicated outcomes may not map closely to actual ratings.

The scorecard in this rating methodology is a relatively simple reference tool that can be used in most cases to approximate credit profiles of issuers in this sector and to explain, in summary form, many of the factors that are generally most important in assigning ratings to these issuers. Credit loss and recovery considerations, which are typically more important as an issuer gets closer to default, may not be fully captured in the scorecard. The scorecard is also limited by its upper and lower bounds, causing scorecard-indicated outcomes to be less likely to align with ratings for issuers at the upper and lower ends of the rating scale.

The weights for each factor and sub-factor in the scorecard represent an approximation of their importance for rating decisions across the sector, but the actual importance of a particular factor may vary substantially based on an individual issuer's circumstances.

Factors that are outside the scorecard, including those discussed above in the "Other considerations" section, may be important for ratings, and their relative importance may also vary from company to company. In addition, certain broad methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector.[15] Examples of such considerations include the following: how sovereign credit quality affects non-sovereign issuers, the assessment of credit support from other entities, the relative ranking of different classes of debt and hybrid securities, and the assignment of short-term ratings.

We may use the scorecard over various historical or forward-looking time periods. Furthermore, in our ratings we often incorporate directional views of risks and mitigants in a qualitative way.

General limitations of the methodology

This methodology document does not include an exhaustive description of all factors that we may consider in assigning ratings in this sector. Issuers in the sector may face new risks or new combinations of risks, and they may develop new strategies to mitigate risk. We seek to incorporate all material credit considerations in ratings and to take the most forward-looking perspective that visibility into these risks and mitigants permits.

Ratings reflect our expectations for an issuer's future performance; however, as the forward horizon lengthens, uncertainty increases and the utility of precise estimates, as scorecard inputs or in other considerations, typically diminishes. Our forward-looking opinions are based on assumptions that may prove, in hindsight, to have been incorrect. Reasons for this could include unanticipated changes in any of the following: the macroeconomic environment, general financial market conditions, industry competition, disruptive technology, or regulatory and legal actions. In any case, predicting the future is subject to substantial uncertainty.

Appendix: Managed toll lanes

Within the toll road sector, managed toll lanes (express lanes) are built adjacent to non-tolled lanes to alleviate congestion in urban areas. Managed lanes typically use congestion pricing, whereby tolls are raised or lowered at certain times of the day or depending on traffic flow to manage traffic and to maintain speeds on the managed lanes at or above minimum limits.

Credit risks associated with demand risk, single-asset, managed lane projects typically include a limited operating history, high leverage with back-loaded principal amortization profiles and construction risk for greenfield projects. In addition to considering their typical small size, we incorporate our view of the essentiality of managed lanes into our scoring of the Asset Type sub-factor. These projects have typically been most successful along very congested routes in densely populated, major metropolitan areas where drivers find value in the time-money tradeoff. No or limited track record typically leads to relatively low scores in the Operating Track Record and Revenue Stability sub-factor. Construction is usually complex, since the goal of construction efficiency is typically balanced against the goal of limiting the impact on the existing road.

Traffic and revenue for managed lane projects are generally more volatile than for traditional toll roads due to the use of dynamic tolling to maintain travel speeds. Since managed lanes relieve congestion, increases and decreases in traffic may be disproportionate to increases and decreases in traffic within the project corridor as a whole. As a result, our base revenue forecasts may be more conservative than management's, and we may incorporate stress scenarios into our forward view of Leverage and Coverage metrics, or we may incorporate a lower confidence in future results qualitatively in ratings.

Moody's related publications

Credit ratings are primarily determined through the application of sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. A list of sector and cross-sector credit rating methodologies can be found here.

For data summarizing the historical robustness and predictive power of credit ratings, please click here.

For further information, please refer to *Rating Symbols and Definitions*, which is available here.

Authors:

Jennifer Chang

John Medina

Daniel Marty

Endnotes

1 The debt of the toll road and parking entities rated using this methodology is without recourse to the general funds of a government. The entity may be a separate governmental authority, or the debt may be structured such that recourse is limited to toll or parking fees and related revenues.

2 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

3 In our methodologies and research, the terms "scorecard" and "grid" are used interchangeably.

4 For an explanation of our standard adjustments, please see our methodology that discusses adjusting reported pension data for public entities such as states and local governments.

5 For more details on ANPL, please refer to our methodology for adjusting reported pension data for states and local governments. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

6 The standard three-pronged test for US issuers reflects an Internal Revenue Service requirement that debt service reserve funds be sized at the lesser of (i) maximum annual debt service; (ii) 125% of the average annual debt service over the course of the bonds; or (iii) 10% of the par issuance price. In most cases, the debt service reserve fund approximates 12 months of debt service.

7 PFI stands for private finance initiatives, and PPP or P3 stands for public-private partnerships. For a link to a list of our sector and cross-sector methodologies, please see the "Moody's related publications" section.

8 A link to a list of our cross-sector methodologies can be found in the "Moody's related publications" section.

9 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

10 When a factor comprises sub-factors, we score at the sub-factor level. Some factors do not have sub-factors, in which case we score at the factor level.

11 Numerically, a downward notch adds 1 to the score, and an upward notch subtracts 1 from the score.

12 A link to a list of our sector and cross-sector methodologies and a link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.

13 For an explanation of the Baseline Credit Assessment, please refer to *Rating Symbols and Definitions* and to our cross-sector methodology for government-related issuers. A link to a list of our sector and cross-sector methodologies and a link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.

14 A link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.

15 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

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

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Contacts

Kurt Krummenacker +1.212.553.7207
Associate Managing Director
kurt.krummenacker@moodys.com

A. J. Sabatelle +1.212.553.4136
Associate Managing Director
angelo.sabatelle@moodys.com

Ning Loh +852.3758.1668
Associate Managing Director
ning.loh@moodys.com

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

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