

THE STATE OF WASHINGTON

REPORT ON

**SR 520 BRIDGE REPLACEMENT AND HOV
PROJECT
FUNDING ALTERNATIVES**

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State of Washington

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Table of Contents

CHAPTER

SUMMARY

1.	INTRODUCTION AND OVERVIEW.....	4
2.	PROJECT DESCRIPTION	5
3.	SECURITY STRUCTURE OPTIONS	7
4.	ANALYSIS OF OPTIONS.....	10
5.	CONCLUSIONS	19

APPENDICES

- A. Prior Analyses
- B. Assumptions and Financial Summary
- C. Rating Research Reports
- D. Laws Governing Washington State Debt

Summary

The SR 520 Bridge Replacement and HOV Project has an unfunded capital requirement of about \$2.7 billion

Two financing vehicles may be used for the debt necessary to complete the project – general obligation/motor vehicle fuel tax bonds and revenue bond - and; they may be used alone or in combination

If revenue bonds are issued, the state will undertake a substantial process of developing legal documentation and procuring investment grade bond ratings

The Project

The SR 520 Bridge Replacement and HOV Project will replace and expand the Evergreen Point Bridge that spans Lake Washington, providing an important highway for citizens in Seattle and on the Eastside. For purposes of this financial analysis, the 6-lane, Pacific Interchange plan was used. The 6-lane bridge project, along with the unfunded component of a project on the I-90 bridge known as the R8A project (which will add HOV lanes to the outer roadway between Bellevue and Seattle and make HOV direct access improvements) are currently estimated to cost approximately \$4.4 billion. An estimated total of \$1.7 billion of funding has been identified, including \$1.1 billion to come from the Regional Transportation Investment District (RTID) plan yet to be approved by voters. The remaining capitalization requirement is approximately \$2.7 billion. Tolls are assumed to provide funding to repay bonds sold to cover the remaining requirement.

Purpose of the Report

The purpose of this report is to develop a preliminary plan of finance, to aid decision makers as they evaluate legislative proposals. The report evaluates two methods to finance the project and identifies certain credit strengths and weaknesses of the project. ***Conclusions in this report are preliminary. Further vetting and testing of assumptions is necessary.***

Options

There are essentially two bonding vehicles available to the state to debt finance the SR 520 project - general obligation/motor vehicle fuel tax bonds and revenue bonds. Although some combination of long-term bonds is anticipated to be issued, short-term funding vehicles (such as commercial paper), additional reserves and/or state subsidies may be used to minimize the costs of financing.

Credit Considerations

The credit analysis for general obligation bonds issued to finance the SR 520 project differs substantially from that of revenue bonds issued for the project. If the state elects to issue general obligation/MVFT bonds for the project, the credit evaluation will be focused on the state's financial condition and the bonds will carry the state ratings (AA category).

If the state elects to issue revenue bonds for the project, the credit evaluation will be focused on the project elements. Because of the many risks associated with toll facilities, most toll revenue bonds are rated no

higher than the A-rating level. The SR 520 project and its financing package should be structured as to meet the criteria for an A rating (the median rating for revenue bonds for such facilities nationwide).

Preliminary Findings and Recommendations

We note that this financial analysis represents only one piece in the overall planning for the SR 520 project. There is substantial work still to be completed to refine the cost estimates, firm up the capital funding commitments, determine the optimal toll structure and select the optimal mix of bonds. When it comes time for passage of enabling legislation, close consultation with the Office of the State Treasurer, its financial consultants and other members of the finance community should take place to ensure that the most flexible, least-cost financing structure is implemented for this vital project.

Tolling of Bridges – Regardless of the bonding vehicle selected, in order to be financially feasible, the state must elect either to 1) toll both the SR 520 and I-90 bridges and/or 2) contribute additional funds to the project construction costs. Without additional funds, some tolling of both bridges will likely be necessary prior to completion of the project. Under the current assumptions, if only SR 520 were tolled, financing would fall 31% to 33% short of funds needed for the project.

We note that the tolling of I-90 requires federal approval. Federal law (Title 23 U.S.C. Section 301) generally does not allow tolls to be imposed on Interstate Highways. Approval for tolling I-90 would require submission of an application to FHWA describing in detail the tolling proposal, demonstrating compliance with program requirements and FHWA standards, and their concurrence with the state proposal.

Viable Bonding Options - Assuming the tolling of both bridges, 30-year general obligation/motor vehicle fuel tax bonds and 40-year revenue bonds, each alone provide sufficient capacity to finance the project. Some combination of these bonding options may also be viable, and financing enhancements, such as a short-term funding program like commercial paper, will reduce the overall financing costs. However, we believe that it is too early to evaluate the optimal combination of the options and the state would be best served by retaining full flexibility for all options in any legislation.

If the Tacoma Narrows Bridge financing model is elected, general obligation/ motor vehicle fuel tax debt service would be paid through the Motor Vehicle Fund and then reimbursed by toll revenues. Alternatively, the state may elect to establish a different mechanism, where toll revenues are used directly to pay debt service – as long as the back-up pledge is the motor vehicle fuel taxes. Either way, the Motor Vehicle fund would be exposed to the risk that toll revenues are insufficient to reimburse that

Without additional funds, both SR 520 and I-90 must be tolled to finance replacement of SR 520 and some tolling is likely prior to completion

Assuming the tolling of both bridges, 30-year GO/MVFT bonds and 40-year revenue bonds, each alone, provide sufficient capacity to finance the project so the state would be best served by retaining full flexibility for all options in any legislation

fund for motor vehicle fuel taxes used to pay debt service.

The ability to independently set (and raise) toll rates is critical to the creditworthiness of the project, particularly if toll revenues are expected to repay debt. If a revenue deficiency occurred for the revenue bond option, the state might not be legally obligated to provide for bond debt service (depending on the security structure). However, to preserve its market reputation, the state would need to decide how debt service on the bonds issued to finance the project would be paid.

We recommend that all debt issues for the project be managed through the Office of the State Treasurer

Integration of Debt Issuance Process and Project Management - Regardless of which bonding option is chosen, we recommend that all debt issues for the project be managed through the Office of the State Treasurer (OST). The OST currently manages all state borrowing and is in the best position to implement the plan of finance, especially if it involves the issuance of different types of bonds.

Further, we recommend that the state consider establishing an independent tolling authority in the future to set and raise tolls and operate various tolled transportation projects throughout the state, similar to that which is done in other parts of the country. We note that the debt should be managed through the OST even if another entity manages the operations and toll setting process for the SR 520 bridge. Given its essentiality and feasibility, the SR 520 project could provide an ideal foundation for a statewide “system” of toll facilities.

Chapter 1: Introduction and Overview

Background

This report evaluates financing options for the SR 520 Bridge Replacement and HOV Project

In addition, the report develops a preliminary plan of finance

The Washington State Department of Transportation (WSDOT) proposes to undertake a project to replace the SR 520 Evergreen Point Bridge and to complete certain HOV access improvements on I-90 (the “SR 520 project” or the “project”). The total funds required to complete the project are estimated to be \$4.4 billion. Although federal, state and local funds have been committed to the project, including \$1.1 billion to come from the Regional Transportation Investment District (RTID) plan yet to be approved by voters, \$2.7 billion is expected to be debt financed. WSDOT has asked the Office of the State Treasurer (OST) for assistance in developing a feasible plan of finance to complete the project. The OST engaged the services of Seattle-Northwest Securities Corporation and Montague DeRose and Associates, LLC, financial advisors, to evaluate financing options and to recommend a plan of finance.

The Project Elements

The SR 520 Bridge Replacement and HOV Project will replace and expand the Evergreen Point Bridge that spans Lake Washington, providing an important highway for citizens in Seattle and on the Eastside. The I-90 Two-Way Transit and HOV Operations Project (the R8A preferred alternative) will add HOV lanes to the outer roadway of I-90 between Bellevue and Seattle and make HOV direct access improvements.

Purpose of the Report

The purpose of this report is to develop a preliminary plan of finance that will aid decision makers as they evaluate legislative proposals. We have reviewed research relating to toll road financings, performed quantitative modeling to assess the funding options and interviewed rating agency specialists for guidance relating to the key credit considerations. The report identifies possible bonding vehicles as well as certain credit strengths and weaknesses of the project.

Chapter 2: Project Description

Project Description

The SR 520 Bridge is a critical pathway across Lake Washington for commuters from Seattle and the Eastside

The SR 520 Bridge Replacement and HOV Project is over 6 miles long. Within that corridor, the SR 520 Evergreen Point Bridge is a one-and-a-half-mile long floating bridge together with its approaches. The bridge spans Lake Washington, linking densely populated cities and some of the largest employers in the state. Built in the early 1960s, the 40-year old bridge is vulnerable to seismic events and windstorms with its hollow support columns and aging near-shore anchor cable system. While ongoing retrofit and repair efforts have kept the bridge safe and functional, the floating portion of the Evergreen Point Bridge is nearing the end of its useful life (estimated to be 2020).

The SR 520 Bridge Replacement and HOV Project would replace the current four-lane bridge with six lanes built to modern seismic codes (two general purpose and one HOV lane in each direction). Major benefits include congestion relief with increased transit capacity and improved safety, including solid columns that can withstand earthquakes; shoulders for emergency vehicles and disabled vehicles; and pedestrian and bicycle lanes. Expansion and improvements to the approach structures and on- and off-ramps of the Evergreen Point Bridge, the Portage Bay Bridge, and segments of SR 520 on either end of the lake are included in the project. The pontoons will be large enough to support future high-capacity transit (HCT).

Although the SR 520 Project has some funding commitments, it is currently estimated to require an additional \$2.7 billion capitalization

The I-90 Two-Way Transit and HOV Operations Project (the R8A project) will make HOV improvements. WSDOT and Sound Transit plan to add HOV lanes to the I-90 outer roadway between Seattle and Bellevue, and will also build new I-90 HOV on and off-ramps on Mercer Island and will improve I-90 HOV access at Bellevue Way. I-90 has a two-lane reversible center roadway between Seattle and Bellevue for buses, carpools and vanpools only. Traffic travels westbound in the mornings and eastbound in the evenings on the center roadway. However, buses, carpools and vanpools that are traveling in the opposite direction of the center roadway are forced to use general-purpose lanes. This makes buses and other high occupancy vehicles traveling between Seattle and Bellevue run increasingly late during rush hours, and reduces the benefits of sharing the ride. Benefits of the project are expected to last until 2040.

Tolls are assumed to provide some of the project's future funding

In this report, we refer to the SR 520 and the R8A, collectively, as the SR 520 project.

Project Funding

For the purpose of this financial analysis, we are assuming the 6-lane alternative with the Pacific Interchange for the SR 520 corridor is chosen and the R8A preferred alternative is undertaken. Together, project costs are currently estimated to cost \$4.4 billion. An estimated total of \$1.7 billion of funding has been identified.¹ The remaining capitalization requirement is approximately \$2.7 billion. Tolls are assumed to provide funding to repay bonds sold to cover the remaining requirement.

¹ Anticipated funding sources for the SR 520 project include \$52.3 million from the 2003 State Nickel Package, \$493 million from the 2005 State Transportation Partnership package, \$0.9 million from 2005 Federal Funding, and \$1.1 billion from the 2007 Regional Transportation Investment District plan yet to be approved by voters. Two stages of the R8A preferred alternative project have identified funding sources. The unfunded component of the project has been included in this analysis.

Chapter 3: Security Structure Options

Introduction

Two debt vehicles (general obligation/motor vehicle fuel tax bonds and revenue bonds) may be used by the state (separately or in some combination) to finance the unfunded portion of the SR 520 project

With rare exception, over the past 30 years the State of Washington has funded transportation projects by issuing general obligation bonds, backed by the full faith, credit, and taxing power of the State and further supported by motor vehicle fuel taxes (GO/MVFT bonds). The State may, however, use alternative security structures, notably revenue bonds, which are backed by a dedicated revenue stream (rather than the state's taxing authority). We discuss the bonding options for the SR 520 project in this chapter.

Options

There are essentially two bonding vehicles available to the state to debt finance the SR 520 project – general obligation bonds/motor vehicle fuel tax bonds and revenue bonds.² The state may issue the different types of bonds alone or in some combination. Although some combination of long-term bonds is anticipated, short-term funding vehicles, such as commercial paper may also be used to enhance these structures and reduce the overall borrowing cost.

In addition to choosing the funding vehicle, the state must elect the type of revenue pledged and whether or not debt has a right to the first call on revenues or if operating costs are paid ahead of debt service.

Finally, the state may pledge additional security to improve the creditworthiness of debt issued to fund the SR 520 project. Such additional security could include a state guarantee, increased reserves or increased state funding (cash subsidies) in the form of either capital contributions or annual subsidy of ongoing operating costs. These monies may derive from state general funds, motor vehicle fuel tax funds or any other legally available source.

In this chapter, we outline these options.

Bonding Vehicles

General obligation/motor vehicle fuel tax bonds are limited to 30-year maturity but are not subject to the state debt limit

General Obligation Bonds - General obligation bonds pledge the full faith, credit and taxing power of the state. These are generally subject to constitutional and statutory limits on debt, which include a maximum amount (debt service limited to 7% or 9% of general state revenues) and a maximum maturity of 30 years. However, general obligation/motor vehicle fuel tax bonds are excluded from the debt limit, although they

² As noted in Appendix A, following an evaluation by entities familiar with private financing options, this project was not deemed suitable for public-private partnership financing, based on tolling SR 520 only. We have therefore not examined a "public-private" option in this analysis.

are subject to the maximum maturity of 30 years. (See Appendix D for further details on laws governing state debt.)

Revenue bonds would be structured to be exempt from state debt limits and offer the option of financing terms longer than 30 years

Revenue Bonds - Revenue bonds pledge a dedicated stream of revenues to repayment. Most often, the revenue stream is related to the project. For the SR 520 bridge, pledged revenues might include motor vehicle fuel taxes and/or toll receipts. Revenue bonds are not limited by the state constitution as to amount or final maturity. A revenue bond issued for the SR 520 project would need to obtain ratings, as no similar security structure currently exists at the state level.

Pledged Revenue

There are several types of revenue pledges available to the state. General characteristics of the types of revenue pledges are summarized below.

Additional security, in the form of subsidies or back-up pledges, may improve the project's creditworthiness and thereby lower borrowing costs

Gross Revenue Pledge - Under a gross revenue pledge, all revenue is legally pledged first towards the payment of debt service before any payment of operating or maintenance costs. A gross revenue pledge assures investors that revenues collected go first to debt service. So long as debt service is payable solely from revenues of the public improvement project, it is not considered state debt and is not subject to constitutional or statutory debt limits.

Although a gross revenue pledge provides investors with a first call on receipts, it provides little additional security to a bond where the same revenues must be used to operate and maintain the facility. Investors recognize that the facility can only be expected to generate revenues if it is properly operated and maintained. A gross revenue pledge adds additional value only in a situation where operating and maintenance costs are funded from another revenue source, such as state excise taxes on motor vehicle fuels.

Net Revenue Pledge - Under a net revenue pledge, all revenue is legally pledged first to the costs to operate and maintain the facility, with payment of debt service second in the flow of funds. A net revenue pledge is often used for infrastructure projects. Investors are exposed to the risk that revenues may be insufficient to pay debt service after all operating costs have been paid. As a result, a net revenue pledge typically includes a covenant to collect annual rates and charges in an amount in excess of the annual amount of debt service (the "coverage requirement").

Additional security, in the form of subsidies or back-up pledges, may improve the project's creditworthiness and thereby lower borrowing costs

Enhancements to Security Pledge

The State can enhance the SR 520 project by providing for additional security.

State Guarantee of Debt Service - Under a state guarantee pledge, revenue bonds could be issued by an independent authority created by

the state to govern the bridge operations. Should project revenues be insufficient to pay debt service, the state would be responsible for lending sufficient amounts to the independent authority to make those payments. This is also known as a contingent payment pledge.

The guarantee, or contingent payment pledge, may a) include the state's full faith, credit and taxing power, b) be limited to excise taxes collected on motor vehicle fuel (or some other legally available funding source), or c) may include both a full faith and credit pledge plus a pledge of motor vehicle fuel taxes. The second and third options would clearly not implicate the state's debt capacity. A "debt" exists and the state's debt capacity is affected, where the state guarantees payment of bonds issued by a state agency, and the guarantee is backed by tax sources other than the motor vehicle fuel tax. A contingent payment obligation to an independent state instrumentality might not be considered state debt. A state contingent loan pledge to a local or regional entity would not constitute state "debt." However, the court might rule that a contingent loan promise to a state instrumentality (like a statewide tolling authority) would count against the state's debt capacity if that pledge did not include the use of motor vehicle fuel taxes.

The state may also structure the guarantee such that future toll revenues would be applied to fully reimburse the state for any amount advanced to cover deficiencies in net revenue available for debt service. This reimbursement would probably have to fall at the bottom of the flow of project revenues.

We note that if the state were to provide some form of guarantee, the rating agencies will expect to see some acknowledgement of the contingent obligation in the state's Comprehensive Annual Financial Report (CAFR) and the state should determine the proper accounting treatment for the guarantee under Governmental Accounting Standards Board rules.

State Payment of Operating Costs - The State may also elect to enhance the security structure of revenue bonds by guaranteeing a secondary, contingent source of funds for operating costs. This could reduce the interest rate and coverage requirement for bonds with a "gross revenue" pledge, i.e., toll revenues being pledged to bond debt service ahead of operating costs.

Additional Reserves - To mitigate the risk of a project financing, issuers often create additional reserves. These might include operating reserves, repair and replacement reserves and debt service reserves. A construction reserve (contingency) could also be created to mitigate construction risk. Debt service reserves are common for revenue bonds, but very rare for general obligation bonds. The financial analysis contained in this report do not provide for the funding of reserves.

To mitigate the risk of a project financing, issuers often create additional reserves

Chapter 4: Analysis of Options

Introduction and General Overview

The proposed plan of finance does not yet incorporate input from Wall Street

An evaluation of the options for SR 520 project debt includes a review of credit factors, financial results and legal considerations. We note that this analysis does not yet incorporate input from underwriters who will be responsible for marketing and selling the debt obligations. Such review should be undertaken prior to finalizing the SR 520 project plan of finance. Overall, any evaluation of financial options is a process that will require multiple iterations before a final set of recommendations can be put forward.

It would be difficult to overstate the importance of the evaluation of SR 520 project debt by the three major credit rating agencies. While a high rating may not assure acceptance by underwriters and investors, a poor one would certainly make it difficult to bring the bonds to market. In preparing this section, we sought the input of toll road credit specialists representing all three of the credit rating agencies; their input is incorporated herein and indicated with a checkmark (✓).

Further, it should be noted that rating agencies will require an “investment grade” revenue and traffic analysis; by their own admission, the studies to date are not considered “investment grade”.

Credit Characteristics of Bonding Options

The credit analysis for GO/MVFT bonds issued to finance the SR 520 project differs substantially from that of revenue bonds issued for the project.

GO/MVFT bonds – If the state elects to issue GO/MVFT bonds for the project, the credit evaluation will be focused on the state’s financial condition. The bonds will carry the state ratings, which are currently AA/AA/Aa1 by Fitch, Standard & Poor’s and Moody’s, respectively. The state will not be obligated to provide detailed project information.

Revenue bonds – If the state elects to issue revenue bonds for the project, the credit evaluation will be focused on the project³.

Because of the many risks associated with toll facilities, most toll revenue bonds are rated no higher than the A-rating level. Start-up facilities frequently carry ratings in the BBB-rating category. In a few instances a tolled facility may carry an AA-rating, such as the San

³ Additional security or state support will be factored into the revenue bond rating.

Francisco Bay Area Toll Authority (with seven bridges and a lengthy experience of toll collections and autonomous rate-setting).

The SR 520 project and its financing package should be designed to meet the criteria for an A rating

The SR 520 project and its financing package should be designed to meet the criteria for an A rating (the median rating for revenue bonds for such facilities nationwide). The criteria to achieve A level ratings has been identified by Moody's Investors Service, in its March 2006 publication entitled "Moody's Rating Methodology for State and Local Government Owned Toll Facilities in the United States," a copy of which is attached in Appendix C along with other credit research prepared by Fitch and Standard & Poor's. Where relevant in the discussion that follows, we refer to expectations of an A-level credit.

Revenue bonds issued to finance tolled projects have certain unique credit characteristics. When evaluating the risk associated with the debt to fund the SR 520 Project, analysts will consider two inter-related areas: 1) criteria most directly related to the project's characteristics and 2) criteria related to financials and legal covenants. The next two sections of this report address each of these in turn.

Analysis of the Project

When assigning ratings to SR 520 project toll revenue bonds, there are four major areas which will be examined. These include 1) demand for the facility; 2) traffic diversion caused by competing facilities; 3) governance of the toll bridge(s); and 4) construction risks.

Demand Analysis - Traffic demand is the most critical factor impacting the success or failure of a facility. The SR 520 Evergreen Point Bridge already is in operation and links densely populated cities and some of the largest employers in the state. The SR 520 Bridge Replacement and HOV Project would replace the current four-lane bridge with six-lanes. With the addition of tolls, traffic flow may change. Therefore, a traffic study will be required with a corresponding "investment grade" toll revenue forecast.

Because toll revenue bonds would be a new credit type for the state, rating agencies will require an "investment grade" toll revenue forecast

✓ According to Moody's, an A-level credit would exhibit a stable track record of tolled traffic greater than 5 years.

In April 2004, WSDOT engaged Parsons Brinckerhoff and PB Consult with the Resource Systems Group (the "Toll Feasibility Consultant") to prepare the SR 520 Toll Feasibility Study. The study used the Puget Sound Regional Council (PSRC) model as the base of its traffic forecasts⁴. The 2004 study was updated in 2007. The 2004 study and its 2007 update, project insufficient traffic and toll revenues from the SR 520

⁴ The rating agencies caution against the use of regional traffic planning models to form the base for projecting toll revenues on a facility. In the past, such models have proven to be inadequate for such a purpose. We have not attempted to assess the appropriateness of the PSRC model for this application.

bridge alone to cover both operating expenses and anticipated debt service for the SR 520 Project.

In the SR 520 Bridge toll analysis, the toll is assumed to vary by time of day with the average-weighted one-way toll being about \$3.19 if both bridges are tolled. The Toll Feasibility Consultant used a variable toll pricing model, constrained by WSDOT at \$5.00 one-way during the afternoon peak period and \$4.00 one-way during the morning peak period. These toll rates have not yet been tested to determine if they are “efficient” (i.e. at the optimal levels to maximize revenue and minimize diversion). The model used for the SR 520 Bridge differs from that of the Tacoma Narrows Bridge. For the latter, the financial plan assumes that the round-trip toll in 2018 (tolls are only collected in one direction) on the Tacoma Narrows Bridge will be \$6.00. This toll is not assumed to vary by time of day.

According to the Toll Feasibility Consultant, the products of their 2004 study and 2007 update, including projected toll rates, traffic volumes and revenues should be considered “planning grade” or feasibility estimates. They are not “investment grade.” Because these studies do not constitute an “investment grade” analysis, and therefore they are not suitable for obtaining an investment grade credit rating (“BBB” or higher) and/or issuing bonds. An “investment grade” toll and traffic analysis must be completed. Additional analysis would be required to obtain an investment grade credit rating and issue project revenue bonds. It is not clear at this time how long it might take to complete an investment grade analysis, as the timing is influenced by many factors, including the availability of data and appropriate models to predict traffic. However, the authors’ experience suggests that an investment grade analysis may take as long as 12 months to complete.

✓ Rating agencies will ‘stress test’ the figures to determine susceptibility to factors such as economic downturns.

Competition - The existence of a nearby non-tolled competitor roadway or bridge has an enormous impact on the successful operation of a tolled facility. Such non-tolled facilities draw traffic away from the tolled facility and impact the revenue collections.

✓ According to Moody’s, an A-level credit would be expected to experience a traffic impact (from competing facilities) of less than 10% over a ten-year period.

The I-90 bridge provides an alternate route to traffic over SR 520. Rating analysts will perceive I-90, if un-tolled, as competing with SR 520, thereby introducing a huge element of uncertainty into the projected revenue collections. The Toll Feasibility Study reported that when only the SR 520 bridge is tolled, diversion would be about 30% on a daily

basis. When both bridges are tolled, average diversion drops to 15% overall, for as long as the project is in service.

✓ S&P examines the capital improvement programs of federal, state and local transportation departments in the area to assess the potential for competition. "Where a high degree of cooperation exists among various levels of governmental transportation departments...the likelihood that competing roadways will be developed is lessened."

Governance and Management - The Washington State Department of Transportation (WSDOT), in partnership with Sound Transit and the Federal Highway Administration (FHWA), has been evaluating replacement options and conducting preliminary design as part of an environmental impact statement (EIS) process. All three agencies are involved in the project's policy and decision-making.

WSDOT, along with FHWA, will oversee construction of the corridor. WSDOT has its own engineering staff, is capable of frequent inspections and can plan and budget for repairs. WSDOT has a long history of successfully delivering complex projects, the most recent of which is the Tacoma Narrows Bridge. We expect this to be viewed favorably by the rating agencies.

The state must make a critical decision about which body will handle the setting of tolls. In addition to managing the construction and operation of the proposed bridge, the rating agencies will evaluate the degree of autonomy of the governing body charged with rate-making decisions. As the state selects the body empowered to determine toll structures and set toll rates, it will be critical to minimize the potential for political pressures that impede the timely raising of rates as operations and debt service may require.

- ✓ According to Moody's, an A-level credit would have a semi-independent board, whose members have moderate tenure and sector experience of greater than ten years, along with some record of making toll revenue adjustments.
- ✓ Fitch says the legal framework under which tolls can be raised to cover financial obligations is a key rating consideration. Fitch views unlimited rate-making authority as providing the most credit protection, as opposed to rate making authority limited by a formula or subject to regulatory approval.
- ✓ Moody's notes that limited or no legal revenue raising flexibility can constrain credit quality - likely at best to the 'A' rating category for standalone projects - even if economic and financial metrics are robust.

The establishment of an independent toll-setting authority would be a significant positive credit factor

There are three principal credit concerns relating to construction– the cost of the project; the schedule for the project; and the quality of the project

Construction Risks - The SR 520 project is subject to a variety of construction risks. There are three principal credit concerns relating to construction – the cost of the project; the schedule for the project; and the quality of the project. Each can negatively impact the availability of sufficient funding to complete the project and/or the collection of toll revenues to repay debt.

It will be important that WSDOT allocate the construction risks among the various project participants. Construction risk is typically mitigated through the use of a design/build contract; implementation of a fixed price/fixed schedule agreement; inclusion of incentives and disincentives in the contract; and/or the application of non-toll revenues or early tolls to fund construction before debt is sold.

- ✓ According to Moody’s, an A-level credit has a stable track record of project completion on time and within budget.
- ✓ Fitch expects projects with complex construction to tolerate six- to 24-month delays in completion, depending on project type, and cost escalations of 10% to 20%.

Analysis of the Finances and Legal Covenants

In addition to their review of the project elements discussed above, rating analysts will evaluate the financial and legal characteristics of the bonds. In this section, we highlight these components and our findings related to them.

WSDOT’s current planning includes variable toll pricing throughout the day, with time- of- day caps on tolls for the SR 520 bridge

Revenue Potential of the Project - Unless the state elects to subsidize the project from other sources, tolls need to be set to cover operations, debt service and ongoing maintenance. As previously noted, in preparing the Toll Feasibility Study, the consultants used a variable toll pricing model, constrained by WSDOT at \$5.00 one-way during the afternoon peak period and \$4.00 one-way during the morning peak period. Our analysis is based on this tolling assumption and the reliability of the traffic forecasts in the Toll Feasibility Study, which we have not sought to independently confirm.

Authority to independently raise tolls, free from political or formulaic constraints, mitigates the risk to the MVFT fund

- ✓ According to Moody’s, an A-level credit has moderate revenue diversity based on the economy, with a mix of commuter-based and commercial traffic, with less than 25% discretionary traffic.
- ✓ Fitch notes that it views over dependence on commercial vehicles as more vulnerable to economic downturns.

✓ Fitch also indicates experience has shown that “regularly scheduled toll increases that are pegged at or close to inflationary levels will likely have minimal adverse traffic impact.”

Our financial analysis assumes three different potential revenue collection scenarios

Using the total projected receipts provided to us, our financial analysis assumes three different potential revenue collection scenarios, which vary by which facility is tolled and the start date of tolling. Operating reserves and major maintenance reserves are not included in the analysis, although funds available for those and other purposes can be identified in each year.

The three cases, along with our preliminary findings,⁵ are summarized below⁶.

Washington GO/MVFT bonds clearly afford better protection to bondholders

1. *One Bridge (SR 520) Tolled* - Toll SR 520 only, beginning in Fiscal Year 2012 (July 2011). Borrowing capacity falls 31% to 34% or \$1.4 billion short of funds needed to complete the project.

2. *Two Bridges Tolled, Starting Before Completion* - Toll both SR 520 and I-90 beginning in Fiscal Year 2012 (July 2011). Borrowing capacity is adequate to fund the project with either GO/MVFT bonds or revenue bonds and to meet the 1.50 times coverage requirement for revenue bonds or the 1.25 times coverage requirement for general obligation/motor vehicle fuel tax bonds.

3. *Two Bridges Tolled, Starting Upon Completion* - Toll both SR 520 and I-90 beginning in Fiscal Year 2019 (July 2018). Borrowing capacity is nearly adequate to fund the project at the coverage requirement(s). An unfunded amount (ranging from \$40 million to \$240 million) was projected.

The issuance of GO/MVFT bonds exposes the Motor Vehicle Fuel Tax Fund to risk if toll revenues prove insufficient

Federal approval will be required in order to implement tolls on I-90. Federal law (Title 23 U.S.C. Section 301) generally does not allow tolls to be imposed on Interstate Highways. However, over the past few years, several programs have been enacted that allow tolling on Interstate Highways under certain circumstances. The most likely federal program that would enable WSDOT to implement tolls on I-90 is the Value Pricing Pilot Program, which is designed to encourage states to manage highway congestion using variable tolls. WSDOT is one of fourteen states that have been accepted into the Value Pricing Pilot Program. Approval for tolling I-90 would require submission of an application to FHWA describing in detail the tolling proposal, demonstrating compliance with program requirements and FHWA standards, and their concurrence with the state proposal.

⁵ *These conclusions are very preliminary. Construction costs, demand and toll analysis, and a variety of other variables need to be more thoroughly vetted and sensitivity analysis conducted to make these conclusions more “firm”.*

⁶ *The preliminary analysis did not consider combining the GO/MVFT and revenue bonds long-term vehicles, as it is too soon to determine what the optimal mix might be.*

Permitted Debt Term – The issuance of Washington general obligation/motor vehicle fuel tax bonds affords better protection to bondholders because the state’s full faith and credit is pledged. However, GO/MVFT bonds must be retired more rapidly (30 years) than revenue bonds (which are not limited as to final maturity), resulting in higher annual debt service requirements for the former.

Debt Service Coverage – Debt service coverage ratios measure the revenue available relative to the annual debt principal and interest payments. The average toll facility has debt service coverage ranging from 1.50 to 2.00 times. The financial analysis was structured such that the SR 520 project would achieve coverage of a minimum of 1.50 times debt service for revenue bonds and 1.25 times debt service for general obligation/motor vehicle fuel tax bonds.⁷

We note that, even with the lower coverage, the issuance of shorter maturity GO/MVFT bonds exposes the MVFT Fund to the risk that toll revenues may be insufficient to cover debt service, requiring WSDOT to apply other monies to pay debt. Even if revenue bonds are issued, the state would likely seek to mitigate the risk of default. The ability to independently raise toll rates to cover both operating costs and debt service will help to mitigate this. Hence, the state will benefit from the protection of debt service coverage, albeit at the 1.25 level.

- ✓ Moody’s may look for a rate covenant which 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 1.50 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 Security or Financial Reserves – As the state develops the plan of finance, it may wish to compensate for any identified project weaknesses by strengthening other financial components. For example, the state may create additional reserves within the project flow of funds (for operations, repair or replacement projects); contribute additional funds to the construction of the project; or subsidize the operating costs of the project. Also, if feasible, receiving funds early from the Regional Transportation Improvement District (“RTID”), provided the plan is

⁷ There is no rating agency or legal requirement to provide coverage for GO/MVFT bonds. Our analysis includes such coverage solely to protect against the risk that toll deficiencies would negatively affect the MVFT Fund.

approved by the voters in the November 2007 election, would improve both funding options. No additional security or reserves were assumed in this analysis.

- ✓ According to Moody's, an A-level credit will have at least six months cash on hand, and a moderate debt ratio of greater than 60%, along with a 12-month debt service reserve fund, operating reserves in excess of six months and a capital maintenance reserve.
- ✓ Moody's indicates that 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."
- ✓ 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."⁸

All-In Financing Cost - Credit ratings have a significant impact on interest rates at which the project will be financed. We *estimate* that if "A" rated,⁹ the revenue bond all-in financing cost would be 35 to 40 basis points greater than that of GO/MVFT bonds, assuming bond insurance for both the GO/MVFT bonds and revenue bond options.

Excess Net Revenues - In the event significant excess net revenues are generated after payment of operating costs and debt service, a portion of those funds should be reserved for major repair and replacements (R&R) as the bridge ages. Such reserve amounts should be projected by an independent engineering firm experienced in such analysis. Net revenue in excess of this R&R reserve could be used 1) to retire debt or 2) accumulated to an amount sufficient to allow the legal coverage requirement to be lowered, thereby potentially leading to reduced tolls.

- ✓ In the event the revenue bond alternative is used, the three rating agencies expressed a strong preference for a "closed" flow of funds. That is, net revenues in excess of all requirements should remain in the project or system of projects, not diverted to other, non-project or non-system uses.

⁸ For example, Moody's notes that 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.

⁹ Properly structured, we believe SR 520 toll revenue bonds could receive "A" ratings because of the essential nature of the project, the long history of traffic flow information, the significant amount (39%) of funding from sources other than the bonds, and the lack of viable alternative routes (assuming I-90 is also tolled.)

Financing Enhancements

Although it is too early to refine the plan of finance, or to determine the optimal mix or sequencing of GO/MVFT bonds and revenue bonds, there are some planning level enhancements which can be considered at this time. The state may have the opportunity to reduce overall borrowing costs by implementing a program which includes interim financing. This would involve the use of a short-term GO/MVFT borrowing facility (interim loan or commercial paper) in the early stages of construction. We estimate that the aggregate overall debt service cost savings for such a program as compared to issuing 30-year GO/MVFT bonds, would be over \$500 million. As compared to using a 40-year revenue structure alone, the debt service savings could exceed \$2.6 billion.

Details relating to the use of a short-term GO/MVFT program can be found in the tables in Appendix B.

Chapter 5: Conclusions

We note that this financial analysis represents only one piece in the overall planning for the SR 520 project. There is substantial work still to be completed to refine the cost estimates, firm up the capital funding commitments and determine the optimal toll structure. It appears, however, that given its essentiality and feasibility, the SR 520 project would provide an ideal foundation for a statewide “system” of toll facilities. Our conclusions are summarized below.

Without additional funds, both SR 520 and I-90 must be tolled to finance the SR 520 Project

Early tolling on both bridges (prior to completion) is likely

Tolling of Bridges – Regardless of the bonding vehicle(s) chosen, in order to be financially feasible, the state must elect either to 1) toll both the SR 520 and I-90 bridges or 2) contribute additional funds to the project construction costs. Without additional funds, some tolling of both bridges will be likely prior to completion of the project.

For both GO/MVFT bonds and revenue bonds, if both bridges were tolled starting in 2011, we estimate that the project can be fully funded, using current WSDOT project cost estimates and the revenue projections provided by the Toll Feasibility Consultant. Alternatively, if both bridges were tolled starting in 2019, we estimate that there is an unfunded portion (1% to 5%). If only SR 520 were tolled, financing would fall 31 to 33% short of funds needed for the project, regardless of whether the state sells GO/MVFT bonds or revenue bonds.

Properly structured, both GO/MVFT bonds and revenue bonds provide sufficient capacity to finance the project

As previously noted, the tolling of I-90 requires federal approval. Details of that process may be found in Chapter 4 of this report.

It is likely that a combination of 30-year GO/MVFT and 40-year Revenue bonds, along with short-term options such as commercial paper, will be the optimal mix for providing cost-effective financing

Viable Bonding Options - Assuming the tolling of both bridges, 30-year general obligation/motor vehicle fuel tax bonds and 40-year revenue bonds, each alone, provide sufficient capacity to finance the project. Some combination of these bonding options may also be viable. For example, the state may issue separate series of toll revenue and GO/MVFT bonds at the same time, which would yield higher coverage levels on the toll revenue bonds. Or, it may issue GO/MVFT bonds first, mitigating the construction and bridge start-up risks, and then refund those bonds into toll revenue bonds after the facility is up and running. Financing enhancements, such as a short-term funding program like commercial paper, will reduce the overall financing costs. We believe, however, that it is too early to evaluate the optimal combination of the options. The state would be best served by retaining legal flexibility for all these options as it enacts legislation.

If the Tacoma Narrows Bridge financing model is elected, general obligation/ motor vehicle fuel tax debt service would be paid through the Motor Vehicle Fund then reimbursed by toll revenues. Alternatively, the state may elect to establish a different mechanism, where toll

revenues are used directly to pay debt service – as long as the pledge is the motor vehicle fuel taxes. The Motor Vehicle Fund would be exposed to the risk that toll revenues are insufficient to reimburse that fund for motor vehicle fuel taxes used to pay debt service.

For the best credit rating, a single, toll setting authority should be established

The ability to independently raise toll rates will help mitigate this. If a deficiency occurred for the revenue bond option, the state may not be legally obligated (depending on the security structure), but to preserve its market reputation, it would need to decide how this would be covered.

Benefits of Bonding Options – Some of the potential advantages of the GO/MVFT and Revenue Bond alternatives are:

General Obligation/Motor Vehicle Fuel Tax Bonds (30-year term)

- Lower all-in financing cost of about 35 – 40 basis points.
- Funds freed up upon final payment in 30 years for cash or debt funded repair and replacement.
- Lower coverage required than in the case of revenue bonds (assumed 1.25 times in our analysis of GO/MVFT case; 1.50 times in revenue bond case).
- Requires less state time and effort than that which would be needed for revenue bonds, under which the state would need to create the legal structure, to procure an investment grade feasibility study and to secure investment grade credit ratings.

Revenue Bonds (40-year term)

- Despite the higher coverage requirement, annual debt service is \$17 - \$20 million lower (about 10% lower) in the revenue bond case. Following construction and start-up, this coverage may be reduced because of the longer term if toll revenue experience is favorable. In either case, tolls may be lower in the revenue bond case because bond repayment is stretched out longer.
- “Political risks¹⁰” may be mitigated by bond covenants.

The financing obligations should be structured and their sales managed by the Office of the State Treasurer

Integration of Debt Issuance Process and Project Management - Regardless of which bonding option is chosen, we recommend that all debt issues for the project be managed through the Office of the State Treasurer (OST). The state should strive to maintain maximum flexibility in developing the legal authorizations governing the debt so that it retains options for future bond structures. The OST currently manages all state borrowing and is in the best position to implement the plan of finance, especially if it involves the issuance of different types of bonds. OST is also in the best position to ensure that the timing of transportation bond issues does not conflict with other state borrowings coming to the market.

¹⁰ Pressures to set tolls imprudently low, to under-fund O&M and/or replacement reserves, etc.

Further, we recommend that the state consider establishing an independent authority in the future to set tolls and operate various tolled transportation projects throughout the state, similar to that which is done in other parts of the country. We note that the debt should be managed through the OST even if another entity manages the operations and toll setting process for the SR 520 project.

One of the best examples of this is the Bay Area Toll Authority (California), (BATA) which operates a system of bridges around the San Francisco Bay. As we note in this report (See Chapter 4), BATA is one of the highest rated toll facilities in the country. In this example, BATA manages the bridge system and sets tolls, but the California State Treasurer's Office serves as the agent for sale on all the debt issues. Under this model, the Washington OST would control the debt issuance process while an independent state entity handles operations and tolls. Given its essentiality and feasibility, the SR 520 project would provide an ideal foundation for such a "system" of toll facilities.

Additional Review - Finally, when it comes time for passage of enabling legislation, close consultation with the Office of the State Treasurer and its financial consultants should take place to ensure that the most flexible, least-cost financing structure is implemented for this vital project.

Summary of Conclusions

In summary, we recommend the following:

- The state must elect either to 1) toll both the SR 520 and I-90 bridges or 2) contribute additional funds to the project.
- Both GO/MVFT bonds and revenue bonds are viable bonding options. A mix of General Obligation/Motor Vehicle Fuel Tax and Revenue Bonds should be issued to minimize financing costs. Short term borrowing mechanisms should be implemented in tandem with tolling both bridges at the commencement of project construction. However, it is too early to determine the optimal mix.
- The state should maintain the maximum flexibility to implement the financing package as it considers legislative approvals.
- The state should consider establishing an independent statewide tolling authority to set and raise tolls. The various tolled transportation projects throughout the state should be managed by the statewide tolling authority.
- For any toll revenue bonds, the State Finance Committee should issue the bonds on behalf of the statewide tolling authority thereby providing enhanced debt credibility and marketability, centralized administration and oversight, and finance expertise.

Appendix A: Prior Analyses

Background

A number of independent analyses of the SR 520 Project have been completed

In addition to the work performed by WSDOT, other entities have performed independent analyses relating to the SR 520 Project which have led to the current consensus that a six-lane bridge is most desirable. WSDOT commissioned a regional toll revenue feasibility study, to support the development of a finance plan. In addition, there has been an examination of the project by an Expert Review Panel, as well an assessment by two global financial institutions of the project's potential to be undertaken as a Public Private Partnership (PPP). This chapter briefly summarizes the results of the work performed by these entities, as this report is based, in part, on that body of work.

Regional Toll Revenue Feasibility Study

In April 2004, WSDOT engaged Parsons Brinckerhoff, PB Consult with the Resource Systems Group to prepare a SR 520 Toll Feasibility Study. The study's scope included reviewing historical traffic information, estimating bridge users' acceptance of tolls, estimating operating and maintenance costs, projecting toll rates and revenues, and preparing a financial capacity analysis. Further, the study sought to identify and advance policy discussions of bridge replacement alternatives, tolling objectives, and project funding. Since the projected year of opening at that time was 2014, the study targeted the potential range of toll revenues for 2014 and WSDOT's financial capacity to fund a portion of the project construction through the sale of bonds.

The study considered two bridge replacement alternatives. First, the study considered a six-lane alternative, assuming two tolled general-purpose lanes and one high occupancy vehicle (HOV) lane in each direction. The HOV lanes would provide toll-free passage for transit vehicles and carpools with three or more occupants ("3+ HOV"). Second, the study considered a four-lane alternative, assuming two tolled general-purpose lanes in each direction; the same configuration as the existing bridge. In this second case, the HOV vehicles were assumed to be tolled, while only transit vehicles were assumed toll-free.¹¹

The study tested "bookend pricing policy" financial scenarios, from tolls set to maximize revenue to tolls intended to optimize traffic management. In either case, tolls were assumed to vary by time of day. It was assumed that I-90 would not be tolled. Maximum funding tolls ranged from \$0.75 to \$4.60 for the 6-lane alternative with an average toll of \$3.07 in 2014 dollars. Traffic management tolls ranged from free to \$3.00, and averaged \$1.74 in 2014 dollars. When toll rates were set to maximize revenue, the model predicted 33% diversion to other routes or

¹¹ It should be noted that the six-lane alternative resulted in lower levels of toll diversion than the four-lane alternative because the six-lane provides a dedicated toll-free lane for 3+ HOVs and transit vehicles.

other modes or other times of day. When the rates were set for traffic management, diversion averaged 18%.

The analysis included a variety of financial scenarios that yielded a broad range of potential project funds generated from toll revenues. Several combinations of financial assumptions and toll operating conditions appeared capable of yielding approximately \$700 million for the six-lane alternative and about 5-10% less for the four-lane alternative. Considering these scenarios, it appears that this mid-range funding level could be achieved without causing undue adverse impact to other network facilities.

The April 2004 analysis was updated in February 2007. The February 2007 update focused on the 6-lane alternative, updated traffic projections, reexamined and updated assumptions about deductions such as maintenance and operations, considered tolling prior to the completion of construction, and looked at the possibility of tolling both the SR 520 and I-90 bridges.

The February 2007 update assumed only one toll structure scenario believed to be less than, but close to, the maximized-revenue pricing policy scenario assumed in the 2004 study. As in the 2004 study, tolls were assumed to vary by time of day. Tolls ranged from free to \$2.65 for the pre-construction period in 2010 dollars under the assumption that when lanes or ramps are closed for construction purposes, travel would be free. After construction is complete, tolls range from \$1.00 to \$5.00 in 2010 dollars. When only the SR 520 bridge is tolled, traffic forecasts indicate diversion would be about 30% on a daily basis. When both bridges are tolled, average diversion drops to 15% overall for as long as the project is in service.

Expert Review Panel

The 2006 Washington State Legislature directed WSDOT to form an Expert Review Panel to review the finance and implementation plans for the SR 520 Bridge Replacement and HOV project. The panel's findings were made public in a Final Report on August 31, 2006, and in a supplemental report issued on October 31, 2006. Despite some flaws which were discussed in the above report, the panel concluded that WSDOT's plans are "fundamentally sound and achievable." However, the report stated the following: "Overall, we find it unreasonable for the SR 520 bridge project to assume that it will realize sufficient funding from secured and anticipated funding sources." (c.f. p. 2-14) The report includes the panel's estimate of reasonable funding levels (c.f. p.2-15). We note that, unlike the analysis relating to this report, the Expert Review Panel's report assumed no tolling on I-90.

Public Private Partnership Review

In October 2006, WSDOT invited several global financial institutions to evaluate the SR 520 project, in an effort to determine whether a public/private partnership arrangement could provide a fully-financed project. The firms that participated in the exercise were Macquarie Infrastructure Group, Goldman Sachs & Co, and Ernst & Young. Macquarie Infrastructure Group, a subsidiary of Macquarie Bank, provides transportation infrastructure finance and development services in Australia and several countries throughout the world. Goldman Sachs & Co., Inc. is global investment bank and securities firm. The work of these two firms was reviewed and validated by Ernst & Young, who served as WSDOT financial advisor for this Public/Private Partnership analysis.

Working independently, Macquarie and Goldman met with WSDOT representatives to discuss the project. To support their financial modeling, the firms relied upon information provided by WSDOT, including the April 2004 Parsons Brinckerhoff traffic and revenue study (discussed above). Although each firm took a different approach, both concluded that to fully-finance the SR 520 project from tolls on that bridge only, the required toll rate structure would be unacceptably high, both from a traffic diversion perspective and from a political sustainability perspective.

Tolling I-90 was not considered in reaching their conclusions.

Washington State Comprehensive Tolling Study

In September, 2006, a team led by Cambridge Systematics, Inc. presented, to the Washington State Transportation Commission, a detailed study of the potential of expanded tolling for bridges, roads and other transportation facilities throughout the state. The report analyzed how and when tolls might be used as an effective tool for financing needed facilities, as well as serving as a tool for regulating the use of those facilities. In addition to reviewing technical and financial issues, the study focused on policy questions of equity, fairness and uniformity of tolls, the choice of facilities to toll, who should govern toll rate-setting, and related issues.

A copy of the study can be obtained at:
<http://www.wstc.wa.gov/Tolling/default.htm>.

Appendix B: Assumptions and Financial Summary

In preparing a preliminary plan of finance for the project, the following assumptions were employed:

1) Project Components

- a) The project being evaluated is the 6-lane alternative with the Pacific interchange. In addition, the plan incorporates the unfunded portion of a project to complete HOV improvements on I-90, known as the R8A preferred alternative.
- b) Construction budget and schedule for the project were based upon latest DOT estimates. (Cost and schedule estimates for SR 520 project were completed in fall 2006. Estimates of R8A costs were updated in spring 2007.)
- c) SR 520 project construction will begin in 2011, and will be completed in 2018. During construction, lane or ramp closures may occur on nights or weekends.

2) Funding Sources

Non-bond funds were used first to fund construction

- (1) RTID planned contribution, yet to be approved by voters
 - (2) Gas tax and other state commitments
 - (3) Early toll receipts, if any
- b) Long-term bonds were used to fund project draws, after the above-listed committed funding sources are depleted.
 - c) In addition to existing funding, \$122 million in toll revenues will be needed to construct the R8A preferred alternative on I-90.
 - d) Toll rates and net revenue were based on the 2007 update to the toll feasibility study prepared by Parsons Brinckerhoff and PB Consult with the Resource Systems Group (the Toll Feasibility Consultants), further described in Appendix A.

3) Operating and Maintenance Expenses

- a) During the pre-completion phase:
 - All toll collection O&M costs were deducted from gross revenues.
 - Routine annual facility operating costs were deducted, including incident response, enforcement, information technology upgrades, etc.
 - Routine annual facility maintenance costs were NOT deducted from gross revenues as it was assumed that these costs would either be foregone or covered by the department's existing maintenance budget.
 - Periodic capital re-investment estimates for repairs and rehabilitation (R&R) were based on current and projected

I-90 expenditures. The estimates were annualized and deducted from gross revenues in every year of the pre-completion phases. These annual amounts were assumed to represent contributions to an account that would then cover these periodic, major repairs as they arise over the life of the facility. The account would be used to cover such items as concrete overlays, anchor cables, bridge painting, expansion joint replacements and other major rehabilitation expenditures.

b) After the project is complete:

- All toll collection O&M costs were deducted from gross revenues.
- Routine annual facility operating costs were also deducted.
- Routine annual facility maintenance costs were deducted from gross revenues. Routine maintenance includes such things as: maintenance of electrical systems, tunnel and lids, miscellaneous structures, drainage facilities, and roadside landscaping; training and general work activities; and accident damage repair.
- Periodic capital re-investment amounts for repairs and rehabilitation (R&R) were annualized and deducted every year from gross revenues. As described above, these annual amounts were assumed to represent contributions to an account that would then cover these periodic, major repairs as they arise over the life of the facility.

4) Debt issuance assumptions

Debt Issuance Assumptions			
	Revenue Bonds	GO/MVFT	Interim Funding Option
Term	Long-term (40-year)	Long-term (30-year)	Combination (short-term and long-term)
Minimum debt service coverage required	Annual revenue 1.50 times debt service	Annual revenue 1.25 times debt service	Annual revenue 1.50 times debt service
Interest rates	6.00% Current Interest, 6.50% Deferred Interest	5.90% Current Interest	5.90% bond rate, 4.50% interim borrowing rate
Issuance Cost	0.40% of Par Amount	0.20% of Par Amount	\$500,000 per issue
Bond Insurance	1.00% of Debt Service	0.15% of Debt Service	0.15% of debt service
Underwriter Discount - Current Interest Bonds	0.70% of Par Amount	0.50% of Par Amount	0.50% of par amount
Underwriter Discount – Deferred Interest Bonds	1.20% of Par Amount	1.00% of Par Amount	n/a
Minimum Fund Balance	\$10 million	None	n/a

Financial Summary

State of Washington Financial Summary (\$ millions)											
Case	Long-term 40-year Revenue Bonds			Long-term 30-year MVFT GO Bonds			Combination Commercial Paper & GO/MVFT				
	520 Only		2019 tolling	520 Only		2019 tolling	520 and I-90		2019 tolling	520 and I-90	
	2011 tolling	2	3	2011 tolling	4	5	6	7	8		
Project Cost (2006+)											
WSDOT Nickel	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
WSDOT Partnership Funding	493.0	493.0	493.0	493.0	493.0	493.0	493.0	493.0	493.0	493.0	493.0
WSDOT Other	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
Total WSDOT Contribution	540.9	540.9	540.9	540.9	540.9	540.9	540.9	540.9	540.9	540.9	540.9
RTID Contribution	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0
Toll Revenues and Interest Earnings	249.5	744.0	123.6	229.6	724.0	724.0	98.9	724.4	0.0	724.4	0.0
Bond Funded	1,035.0	2,105.0	2,485.0	1,135.0	2,125.0	2,125.0	2,710.0	1,725.4	2,428.0	1,725.4	2,428.0
CP/Interim Financing Funded	-	-	-	-	-	-	-	399.1	421.0	-	421.0
Unfunded	1,442.5	-	240.4	1,362.4	40.1	-	-	-	-	-	-
Total	4,367.9	4,489.9	4,489.9	4,367.9	4,489.9	4,489.9	4,489.9	4,489.9	4,489.9	4,489.9	4,489.9
% unfunded	33%	0%	5%	31%	0%	0%	1%	0%	0%	0%	0%
Coverage	1.51x	2.10x	1.52x	1.27x	1.87x	1.87x	1.26x	1.56x	1.26x	1.56x	1.26x
All-In Borrowing Cost	6.47%	6.41%	6.50%	6.07%	6.09%	6.09%	6.15%	5.92%	5.82%	5.92%	5.82%
Funds available for other purposes											
2019-2028	313.6	1,395.7	909.8	198.2	1,240.1	1,240.1	549.0	1,385.6	980.2	1,385.6	980.2
2029-2038	424.7	1,880.2	1,231.6	269.2	1,675.2	1,675.2	765.5	2,190.0	1,226.5	2,190.0	1,226.5
2039-2048	552.3	2,463.1	1,620.4	350.1	2,683.0	2,683.0	1,697.7	3,786.1	3,031.0	3,786.1	3,031.0
2049-2058	714.0	3,766.9	2,900.5	2,108.5	6,073.6	6,073.6	6,073.6	6,856.1	6,852.9	6,856.1	6,852.9
Total	2,004.6	9,505.8	6,662.3	2,926.1	11,671.9	11,671.9	9,075.7	14,187.9	12,100.5	14,187.9	12,100.5

* Lower all-in borrowing cost of this option attributable to the use of commercial paper as interim funding through 2015.

Debt Service Summary

Debt Service by Fiscal Year (\$ millions)								
Year	Long-term 40-year Revenue Bonds			Long-term 30-year MVFT GO Bonds			Combination Commercial Paper & GO/MVFT	
	520 Only	520 and I-90		520 Only	520 and I-90		520 and I-90	
	2011 tolling	2011 tolling	2019 tolling	2011 tolling	2011 tolling	2019 tolling	2011 tolling	2019 tolling
	1	2	3	4	5	6	7	8
2009	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-
2011	-	5.0	-	-	4.7	-	3.4	-
2012	-	5.0	-	-	4.7	-	6.0	-
2013	-	5.0	-	-	4.7	-	8.7	-
2014	-	5.0	-	-	4.7	-	9.8	-
2015	9.5	48.4	-	12.1	45.8	-	14.0	-
2016	10.4	52.4	-	13.2	49.6	-	-	-
2017	25.2	53.6	-	29.6	60.4	-	-	-
2018	26.1	55.1	-	30.6	62.6	-	-	-
2019	44.7	99.2	139.1	53.2	112.1	166.0	136.0	162.3
2020	52.5	115.0	158.7	62.5	130.0	191.6	139.0	192.0
2021	57.0	118.5	163.0	67.9	133.3	197.2	139.0	192.0
2022	60.0	123.2	168.1	71.4	137.6	205.3	147.0	192.0
2023	61.7	127.8	175.9	73.3	141.9	211.6	147.6	192.0
2024	63.5	130.6	181.1	75.4	147.0	217.7	187.6	202.0
2025	65.4	134.3	186.3	77.6	151.3	224.0	187.6	201.4
2026	67.2	139.3	191.8	79.8	155.8	230.5	187.6	200.8
2027	69.2	143.3	197.4	82.2	160.3	237.2	187.6	256.4
2028	71.2	147.5	203.2	84.5	165.0	244.1	187.6	251.4
2029	73.3	151.8	209.1	87.0	169.9	251.3	187.6	273.4
2030	75.4	156.3	215.2	89.5	174.9	258.6	187.6	285.1
2031	77.4	160.4	221.0	91.9	179.5	265.5	187.6	285.1
2032	79.5	164.7	226.9	94.4	184.4	272.6	187.6	285.1
2033	81.6	169.1	233.0	96.9	189.3	279.8	187.6	285.1
2034	83.8	173.7	239.2	99.6	194.4	287.3	187.6	285.1
2035	86.1	178.3	245.6	102.2	199.6	295.0	187.6	285.1
2036	88.4	183.1	252.2	105.0	205.0	302.9	187.6	285.1
2037	90.8	188.0	259.0	107.8	210.5	311.0	187.6	285.1
2038	93.3	193.1	266.0	110.7	216.2	319.3	187.6	285.1
2039	95.8	198.2	273.1	113.7	222.0	327.9	187.6	285.1
2040	98.4	203.6	280.5	116.8	228.0	336.7	187.6	285.1
2041	100.9	208.8	287.7	119.8	233.8	345.3	187.6	285.1
2042	103.5	214.1	295.0	122.9	239.8	354.1	187.6	285.1
2043	106.2	219.6	302.6	126.1	246.0	363.2	187.6	285.1
2044	109.0	225.2	310.4	129.4	252.3	372.5	187.6	285.1
2045	111.8	231.0	318.3	132.8	258.8	382.0	187.6	232.4
2046	114.7	237.0	326.5	136.2	265.5	391.8	128.0	174.9
2047	117.7	243.0	334.9	139.8	31.4	60.0	75.6	106.6
2048	120.8	249.3	343.5	143.4	32.3	61.6	27.9	45.0
2049	123.9	255.7	352.4	-	-	-	3.1	6.4
2050	127.1	262.3	361.5	-	-	-	-	-
2051	130.4	269.1	370.8	-	-	-	-	-
2052	133.8	276.0	380.3	-	-	-	-	-
2053	137.3	283.1	390.2	-	-	-	-	-
2054	140.9	290.4	400.2	-	-	-	-	-
2055	144.5	297.9	410.6	-	-	-	-	-
2056	148.3	305.6	421.2	-	-	-	-	-
2057	152.1	32.9	42.4	-	-	-	-	-
2058	156.1	33.8	43.5	-	-	-	-	-
	3,986.7	7,763.2	10,377.3	3,079.4	5,604.9	7,963.9	5,112.4	7,157.9

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

Summary

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.

Table of Contents

	Page
Summary.....	1
Overview of Toll Facility Ratings	3
Rating Methodology: Key Rating Drivers.....	5
Market Position	5
Governance and Management	7
Financial Position and Performance	9
Debt and Capital Plan	11
Covenants and Legal Framework.....	12
Appendix 1: Selected Moody's Medians for U.S. State and Local Government Owned Toll Facilities	15
Appendix 2: Key to Moody's U.S. State and Local Government Owned Toll Facility Ratios	16
Appendix 3: List of U.S. UnEnhanced State and Local Government Owned Toll Facility Ratings	17
Appendix 4: List of Non U.S. State and Local Government Owned Toll Facility Ratings	18
Appendix 5: Moody's Rating Definitions	19

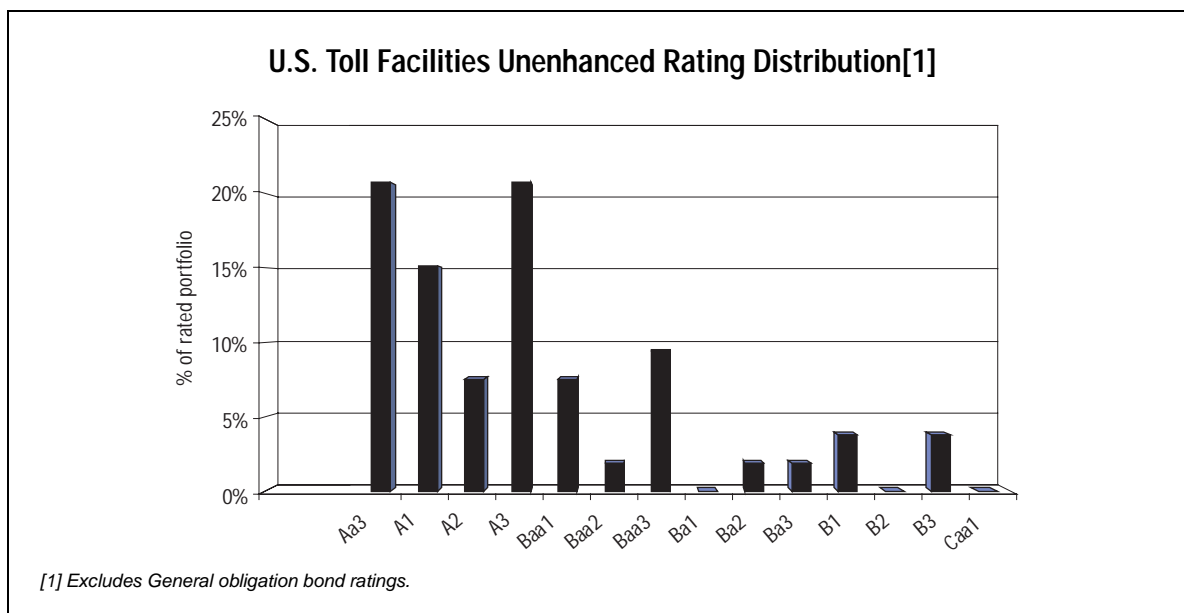
Overview of U.S. State and Local Government Owned Toll Facility Ratings

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

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

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

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

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.

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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

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Moody's Key Rating Drivers for U.S. Toll Facilities*

	Aaa	Aa	A	Baa	Ba	B	Caa
Market Position							
	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

Governance and Management

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

Financial Position and Performance

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%		

Debt and Capital Plan

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

Covenants and Legal Framework

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

*Source: Moody's Rating Methodology for State and Local Government Owned Toll Facilities in the United States, March 2006

Criteria Report

Global Toll Road Rating Guidelines

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■ Summary

Fitch Ratings is making this exposure draft available to interested parties to seek feedback on the issuance of the first Global Toll Road Ratings Guidelines report. The toll road sector is evolving rapidly and has become increasingly global, as entities with the expertise to build, operate, maintain, and finance these facilities have lent their services across international boundaries. The private sector brings a level of competition and efficiency that can benefit toll road project development and operations. At the same time, traditional publicly managed toll roads continue to operate in many parts of the globe. The management structure of publicly managed toll roads may be affected in some cases by private sector involvement and in others may not, but management strategies will likely evolve over time to take advantage of project development and operational efficiencies to meet the growing transportation needs of increasingly urbanized economies.

Historically, toll roads as an asset class have been subject to relatively low default rates. However, a number of projects have been subject to periods of distress, in large part due to the inability to forecast initial traffic and revenue performance with accuracy. In stable, developed economies, incorrect predictions and project externalities caused downgrades, debt restructurings, workouts, and some payment defaults, such as in the U.S. and Europe. In developing economies, the added risk of economic cyclicalities has similarly caused downgrades and defaults, such as in Mexico with the 1994 fiscal crisis. In countries without a history of toll roads, affordability and the willingness to pay have affected project viability, as in the case of Hungary. Ultimate recovery was strong in most developed economies, but not as strong in developing economies.

Fitch's fundamental credit view on the growing strength of toll roads has not changed. In fact, it has been bolstered with increasing evidence of that strength in various parts of the world, in even what have been considered economically challenged projects. These guidelines are intended to cover the broad spectrum of permutations in toll road types and management structures. The report lays out Fitch's view in more detail and guides readers through the analytical framework used in assessing the credit quality of various types of toll roads and financing structures.

User-pay toll roads tend to be more complex and require application of most of the criteria identified in this report. Shadow toll and availability payment mechanisms, which are less exposed to the risks of traffic and excessive leverage, require application of a subset of the criteria, as appropriate. This report also identifies new structural and analytical approaches to enhance bondholder security and achieve and maintain investment-grade ratings for highly leveraged and

Fitch Ratings is releasing this report to solicit market feedback and commentary. Comments may be sent to Cherian George (*see contact information above*). Comments may be published as part of the public consultation process.

September 12, 2006

Table of Contents

Summary	1
Types of Toll Roads	2
Economic Fundamentals.....	4
Legal Framework.....	7
Construction Risk	10
Sovereign and Counterparty Risk	12
Financial Profile	13
Fitch Base and Stress Cases.....	17
Appendix	18

very long-lived concession-like arrangements. It is accomplished largely through forward-looking tests and related covenants that ensure maintenance of manageable levels of leverage. Importantly, this report also provides added definition to the development of Fitch base and stress cases.

The rating levels discussed in the report relate to Fitch’s international credit rating scale. For debt issuances in local markets that require national scale ratings, Fitch will issue the appropriate rating with a special identifier for the country concerned. Fitch requests formal written feedback from concerned parties on the entire contents of the report, but most importantly on the new concepts introduced, no later than Oct. 16, 2006. It can be e-mailed to Cherian George at the address shown on page 1, or mailed to Cherian George, Fitch Ratings, One State Street Plaza, New York, NY 10004, USA.

■ Types of Toll Roads

Toll road financing, construction, revenue generation, and operation can be undertaken through several organizational structures and frameworks. Revenues can be generated through traditional direct user charges, in which motorists using the facility pay a toll, or through third-party payments. Third-party payments are typically from a public sector sponsor to a private sector concessionaire, either in the form of shadow toll payments based on facility usage or availability payments based on the concessionaire’s ability to meet certain performance benchmarks. Ownership and operating models range from public sector sponsor responsibility for all aspects of financing, construction, and operation to public-private arrangements in which the public sector owner grants a concession to the private sector to handle a toll road’s development and operation according to well-defined requirements and operating benchmarks. Whether publicly owned and operated or developed as a public-private partnership, toll roads can be organized as stand-alone projects, either

greenfield or existing facilities, or as a system of toll roads with long operating histories serving well-established markets.

User-Pay Toll, Shadow Toll, and Availability Payment Mechanisms

Both the public and private toll road model utilize the user-pay revenue mechanism. Under this system, a vehicle makes a payment via cash or an electronic method for the use of a road facility. The amount of the payment can either be a fixed charge or distance based. The amount of the payment is also a function of the type of vehicle, with two-wheelers and automobiles usually paying a lower base fee, and commercial and other multi-axle vehicles paying a higher fee on a graduated scale.

In the explicit user-pay model, revenues are directly linked to traffic and thus susceptible to economic downturns, elasticity of demand from toll increases, rising fuel prices, and competing facilities. However, Fitch notes that these risks are generally mitigated over time given the growing long-term value associated with toll facilities. Historically, toll rate increases have resulted in some magnitude of traffic diversion in the short term; however, given the lack of quality competing free roads, it has been Fitch’s experience that traffic levels have recovered (the pace of which is a function of local conditions) given growing demand and time savings.

Typically shadow toll and availability payments are in the form of a medium- to long-term concession, whereby a private contractor receives payments over time for the successful construction and operation of the facility from a public sponsor. The user is not responsible for a payment. In the case of shadow toll roads, the amount of payment is a function of a theoretical toll rate per vehicle with revenue minimums and maximums in many cases, limiting exposure to traffic forecasting risk to the operator on the low end and limiting the government’s exposure to increased subsidy on the high end. Revenues on road availability payment schemes are generally a function of satisfactory operations, maintenance, and capital reinvestment.

In the shadow toll model, the road user has no price incentive to use another road. Criteria used by governments for choosing this funding method have included more efficient project delivery and operations versus traditional means, lack of alternative free roads, political unwillingness to directly charge users, insufficient traffic for a user-

paid toll to be feasible, and a lack of appetite in local financial markets to invest in user-paid roads.

While availability payments have no traffic risk, they have other types of exposure. Once construction is complete, satisfactory operations and maintenance remains the primary risk in availability payment structures. Fitch views this risk as manageable since these costs tend to be smaller and more predictable, though financial margins can be partially eroded. Additionally, predictable and limited mandatory capital expenditures allow for more highly leveraged financial structures. As a result, high levels of unanticipated capital cost can rapidly eat into margins.

The degree of leverage significantly affects the ratings on all three types of toll road structure. Facilities with very low levels of leverage can achieve 'AA' ratings. Those that are highly leveraged (start-ups and established facilities), but retain adequate margins of financial flexibility to deal with predictable downside events, can achieve investment grade ratings. Start-up, stand-alone projects under construction are usually restricted to low investment-grade rating levels.

Public vs. Private

Generally, publicly operated toll facilities maintain a goal of operating solely in the public's best interest by providing an essential service at least cost. In contrast, private operators maintain a goal of maximizing cash flows and returns to equity partners while providing an acceptable level of service. Fitch's credit analysis for both obligor groups focuses on assessing the underlying economic factors of the road that drive revenues, the maintenance of financial flexibility, and the alignment of management's interests in the legal and financing structure with the goal of full and timely repayment of debt.

Historically, public sector goals have been achieved with conservative debt structures and low toll rates. While debt structures were flat to slightly escalating in most cases, that is changing with the higher cost of system expansions and start-up projects. Additionally, public entities have a track record of limiting toll increases due to political considerations, despite their economic ability to raise rates. When absolutely necessary, they are generally implemented in combination with planned capital improvements or system expansions. The angst that accompanies toll increases for publicly operated facilities creates the potential of timing risk that can lead to weakened credit profiles for certain periods.

In most cases, privately operated toll facilities have had greater success at regularly imposing toll rate hikes due to the generally growing economic rate-making ability of most toll facilities, the profit-motive, and less concern by management of the political implications. When concessions are initially granted, toll rates tend to be lower than revenue maximization levels. Nevertheless, once under concessionaire control, toll rates will likely increase to maximum economic or legal revenue levels. However, aggressive toll rate increases, at rates well above inflation, can also subject these facilities to political risk, which potentially carries greater adverse consequences.

While the analytical considerations are largely the same, the differing motivations of public and private sector management result in key distinctions in their toll-rate structures, abilities and willingness to raise tolls, revenue and expense profiles, legal frameworks, and debt structures. Nonetheless, both publicly and privately operated toll facilities have achieved investment-grade ratings, in some cases very high ratings with appropriate legal structures, debt and liquidity levels, financial flexibility, and reasonable traffic and revenue projections.

In the public sector model, management's independence, ability, and willingness to act to maintain fiscal balance in challenging economic times are key rating considerations. Fitch also considers the conservatism built into budgets and long-term forecasts for ensuring fulfillment of future obligations, as well as the ability to deliver capital programs and expansion projects on time and budget. Since these factors are often not completely within the control of a public entity, maintenance of untapped financial flexibility by a public operator to withstand downside stress events is an important input into the rating.

The key rating considerations for privately managed toll facilities are concession certainty, the independence to set toll rates within a clearly defined toll-setting framework, the strength and expertise of the sponsor, the maintenance of adequate levels of equity in the credit structure, and financial flexibility to withstand reasonable downside stress events.

Systems vs. Stand-Alone Facilities

Toll facilities classified as systems include main long-distance, interregional or regional routes linking multiple key economic centers and portfolios of major intra-regional corridors. They may be managed via structures such as government enterprise funds,

independent public authorities, corporations, and investment funds. Typically systems comprise a network of toll roads that produce a diverse revenue mix derived from both commercial and passenger vehicle traffic. Furthermore, systems also tend to have existing facilities that provide a cross-subsidy to expansion projects, usually in the short term during construction and ramp-up phases. Toll facilities classified as stand-alones include nonrecourse bridges, tunnels, connectors, and circumferentials, all of whose only source of revenue is that facility. Fitch classifies stand-alone toll road projects into two groups: greenfield or start-up projects (which are all new construction) and established projects (operated in their current configuration or with service improvements, capacity expansions, or extensions).

Systems with mature segments are generally able to support all direct operating and capital obligations with lower toll rates. Stand-alone facilities, depending on their level of maturity and debt, tend to need to charge higher toll rates to support all their obligations. Under private operation both tend to maximize the toll rates to maximize revenues and equity returns. The ability to do so is generally greater with systems than with stand-alones. As a result, systems have a greater ability to be positioned to support high leverage by government policy to pay for public investment unrelated to the toll facilities themselves. While the geographical and economic diversity of systems provide inherent strength, such leveraging effectively makes their credit risk profiles more akin to those of stand-alones.

■ Economic Fundamentals

A toll road's economic fundamentals provide the foundation that enables a user-pay toll facility operator to set rates and generate revenues to raise capital; construct, operate, and maintain the facility; repay debt; and generate surplus funds to support other toll facilities, regional transportation services, governmental needs, and provide shareholder returns. It is also of value in assessing a shadow toll road's exposure to market risk. Fitch evaluates a toll road's economic fundamentals by analyzing the underlying regional economy, including its sensitivity to economic cycles and one-time events, the depth and diversity of the travel demand served by the toll facility, competitiveness relative to alternative routes, economic rate-raising flexibility, and toll collection methods. The following sections describe the data sources that Fitch uses in its analysis and how it evaluates the factors contributing to a toll facility's economic fundamentals.

Data Sources and the Traffic and Revenue Forecast

Fitch utilizes a number of sources provided by regional planning bodies and the toll facility's land use and traffic and revenue consultants to assess economic fundamentals including historic and projected employment, population, income, motorization, and land use trends as well as historic regional and corridor traffic conditions and projected traffic and toll revenue. The quality of the data set used is of particular importance. Structured national and regional systems for data collection and maintenance are essential to ensure reliability of inputs. To the extent that such infrastructure is not in place, it could make the toll road more difficult to rate on a stand-alone, nonrecourse basis.

While the risks of traffic and revenue forecasts, particularly for user-pay, greenfield projects, are well known with actual results coming in significantly below expectations for a number of facilities, Fitch continues to view – albeit cautiously and in a limited fashion – traffic and revenue consultant reports as a necessary input to its analysis of a toll road's economic fundamentals. The traffic consultant's analysis provides an important assessment of the economic, demographic and land use profile of the toll facility's service area, existing traffic conditions, planned transportation improvements, and motorists' perception of the toll facility's utility. It provides an indication of how economic, demographic, and corridor traffic and transportation network conditions contribute toward a toll facility's traffic and revenue. As such, the inputs to the forecasting process are viewed as useful. The forecasts for established facilities with a long track record of operation and no expectation for drastic changes in tolling policy are viewed as more reliable. The forecasts for start-up stand-alone projects and highly leveraged facilities are viewed with skepticism.

The limitations of the modeling process in accurately forecasting traffic and revenue levels on user-pay greenfield projects on the downside, and the inexperience with forecasting revenue maximization levels on mature facilities, are key risks that Fitch evaluates. Fitch notes that traffic and revenue forecasts for shadow toll roads may be subject to a lower degree of uncertainty than forecasts for user-pay facilities. This is because shadow toll forecasts generally involve the expansion of existing facilities where there is existing traffic demand data and/or are not subject to uncertain assumptions about potential users' value of time saved since motorists using the

facility do not pay a toll. While traffic and revenue forecasts are modeled on long-range planning platforms that are subject to significant uncertainty, they do provide a gauge of demand in the medium to long term. Therefore, Fitch views these projections as a starting point in analyzing the relative magnitude of a toll facility's expected demand profile.

For greenfield projects and those in ramp-up, Fitch will drastically discount the development and value of time assumptions to gauge the impact on traffic and revenue. Fitch will likely assume a five-year lag in development to approximate a deep and prolonged recession and lower initial value of time savings to attempt to significantly reduce economic forecasting and model risk. Fitch will then use the economic profile laid out in the consultant's report as the basis for developing a Fitch base case level of initial year traffic, growth assumptions, and toll rate increases that are expected to result in little to no toll elasticity (minimal elasticity scenario). Fitch will overlay the toll rate framework provided in the sponsor's financial plan to the traffic profile that is developed.

To the extent that planned toll increases are above the Fitch minimal elasticity scenario, toll rate sensitivities based on available comparable data will be developed and applied. To the extent that planned toll increases are below the Fitch minimal elasticity scenarios, little or no traffic impact will be assumed. Fitch will then compare the sponsor's financial forecast to the Fitch-developed financial profile and assess the feasibility of the sponsor's financial plan relative to the desired rating level. On balance, more conservative profiles than Fitch's analysis will achieve higher ratings than more aggressive profiles. A sketch of the steps Fitch follows to develop base and stress tests for projects in developed economies seeking investment grade ratings is provided in the appendix on pages 18 and 19.

Regional Economic and Demographic Analysis

The regional economic and demographic analysis focuses on determining, on a historical and projected basis, the strength and diversity of key economic, demographic, and land use factors that contribute to a toll facility's travel demand. Demographic measures include population and the number of households. Economic factors encompass total employment, employment by industry, household income, and any relevant local/regional indices of economic activity. For those markets that are significantly influenced by the

national economy, gross domestic product will be a consideration. Land use measures include the mix of existing commercial, residential, and retail development as measured by number of units, square footage/meters and vacancy/absorption rates, and the dependency on the timing and magnitude of future developments.

Toll facilities obviously benefit from regional economies with growing population and employment levels across a number of sectors that contribute to continuing residential, commercial and retail development, and growing household incomes. A history of volatile economic cycles and a dependency on particular industries/sectors of the economy pose an added layer of risk and will constrain credit quality.

Fitch evaluates projected economic, demographic, and land use activity relative to historic trends and assesses differing rates of projected activity based on factors including the addition of new developments in high growth regions with developable parcels, slowing rates of increases for maturing regions and flat to declining trends for regions facing economic challenges. A particular risk is the dependency on the timing and magnitude of new development that is expected to significantly benefit a toll facility's traffic and revenue generating capability. To the extent that the sponsor's assumptions are viewed to be aggressive, Fitch will estimate the toll facility's base level of traffic, excluding the new development, and incorporate more conservative prospects for development coming online based on information provided by the toll facility operator and other third-party sources, as appropriate. Fitch's analysis will incorporate the status of commercial and residential developments, governmental approvals and permits, level of investment, stage of construction, and leasing/sales activity. Assumed traffic levels from new land-use activity will be discounted given the uncertainties associated with the timing and pace of new development.

Traffic Profile and Competition

A toll facility's traffic profile is primarily influenced by its regional economic and demographic conditions and the physical attributes (i.e. the route and capacity) of the toll facility as well as other competing and connecting elements of the transportation network. Motorization rates (i.e. the number of licensed drivers and motor vehicles) are a key input to assessing the traffic profile for toll facilities in developing countries where such rates have been low, but are generally escalating.

A diverse traffic base that includes some combination of intercity, commuter, business-related, and recreational travel, all coming from and going to multiple origins and destinations, allows a toll facility to better withstand a downturn in a particular segment. Fitch will assess the risk of dependence on particular types of traffic (e.g. commercial or recreational), origin and destination markets, or a particular toll facility in a system. In particular, Fitch views toll facilities dependent upon commercial vehicles for a significant share of revenues as potentially more sensitive to economic downturns. Given recreational and intercity traffic patterns are more sensitive to gasoline price increases than commuter travel, Fitch will also assess how those toll facilities that are more dependent on noncommuter travel may be adversely affected by a gas price spike.

Competitive toll facilities are those that provide a more direct route and faster travel times relative to other nontolled roads and public transit services within a transportation corridor. A toll facility's competitiveness is primarily measured by the amount of travel time saved and its value to motorists relative to the toll paid. These are key inputs to the traffic forecasting efforts that are nevertheless subject to uncertainties given that they are based on assumptions about the expected physical capacity of the regional transportation network, including the toll facility; underlying economic, demographic, and land use conditions; and motorists' perceived value of time saved. As a result, Fitch will test the sensitivity of a toll facility's traffic profile to changes in its travel time savings and perceived value relative to existing and planned alternative routes. This includes an evaluation of historic traffic trends and congestion levels for competitive nontolled highway routes and, if applicable, for operating toll facilities; actual and expected diversions from the toll facility to other highways due to capacity improvements at those facilities; the sensitivity of a toll facility's traffic to changes in motorists' value of time saved; and the potential traffic impacts due to the availability of competitive transit services.

For greenfield, user-pay projects, where the ability to approximate value of time savings is limited, Fitch will discount the value of time to reflect the initial unwillingness to pay tolls, but then gradually increase it towards the consultants assumption to reflect the likelihood for a greater perception of value of time savings to develop as usage continues.

Detailed analysis on truck traffic and its sensitivity to tolls is not widely available. While studies have assumed that commercial traffic is likely to choose

tolled routes (due to their greater value of time savings), that has not always been borne out in actual performance. As a result, for start-up projects, Fitch will assume more drastic reductions in truck traffic than for passenger vehicles during the first year of traffic to reflect a greater initial resistance to tolls, but then incorporate higher growth assumptions during the first decade of operation to reflect the greater likelihood that trucks will use the tolled route as the benefits become more evident over time.

Economic Rate-Raising Ability

The strength and competitiveness of a toll facility's regional economy directly influence its economic rate-raising ability. For operational toll facilities, economic rate-raising ability is captured by examining the magnitude of toll increases relative to traffic diversions following a rate hike and the time it takes for traffic to recover to prior levels. Obviously, the assessment of economic rate-raising ability for start-up toll facilities with little or no operating history is less direct. As such, Fitch bases its analysis on traffic and revenue forecasts, available traffic data for facilities in ramp-up, and traffic diversion data for peer facilities, if appropriate.

Currently, there is limited data supporting a meaningful assessment of elasticity at different levels of toll increases and the corresponding impact on traffic volumes, particularly for start-up projects. Comparisons used in Fitch-reviewed traffic and revenue studies appear very often to be best guesses based on a limited population of toll roads having some similar characteristics. As a result, their value to Fitch's analysis is limited. A lack of broad global experience with annual toll increases also brings into question the gauges of elasticity that have been used in traffic and revenue studies for established facilities that seek to maximize revenues.

Based on Fitch's experience with a variety of toll roads operating in various parts of the world, it is Fitch's best judgment that in most developed countries with high motorization rates, regularly scheduled toll increases that are pegged at or close to inflationary levels will likely have minimal adverse traffic impact. Toll facilities, typically those under public ownership, that have a history of setting rates below inflation have the additional flexibility to raise rates more steeply without materially affecting demand until tolls have caught up with inflation. It is also Fitch's opinion that an analysis of toll rates, proposed toll increases, and their correlation with local economic activity are important factors in

determining the revenue maximization point of a toll road.

Fitch may discount inflationary increases in weak economies and/or in periods of high inflation and may assign a premium in strong economies and/or in periods of low inflation in an attempt to approximate a facility's maximum revenue point. For facilities with stronger economic profiles, depending on the toll road's market position (e.g. start-up or mature, among others) and local economic conditions, Fitch will consider the following range of possibilities — from Consumer Price Index (CPI) minus 150 basis points to CPI plus 200 basis points — in evaluating the limits of a facility's rate-making flexibility. To reflect the inability to see into the future with certainty, Fitch will assume reduced flexibility over time, particularly in the long run.

Legal and political constraints on toll increases will be superimposed on top of the economic profile developed by Fitch in conjunction with sponsor traffic and toll rate assumptions to arrive at base case and stress case forecasts.

Toll Collection Methodology

With the growing use of electronic toll collection (ETC), toll facility operators can offer users a number of pricing and payment options. In addition, ETC contributes to a toll facility's competitiveness given the technology significantly reduces the time spent paying a toll and increases capacity by eliminating chokepoints at toll plazas. As a result, this can reduce pressure on toll facility operators to widen toll plazas to accommodate additional traffic. Anecdotal evidence indicates that electronic toll payment lessens the elasticity effects of toll increases since customers are not required to pay in cash at the time they pass through the toll plaza, i.e. it separates the decision to use the toll facility with the payment process.

While the vast majority of toll facilities continue to collect tolls electronically and in cash at toll barriers, many facilities are implementing open road tolling (ORT) where electronic toll paying customers are charged as their transponder-equipped vehicles pass under a gantry. Under this concept cash tolls are not collected at the time of use of the facility. Registered users may choose to prepay for passage. Unregistered users without transponders are billed via a video tolling process and are subject to the base toll rate plus an administrative fee. The customer is sent a bill using a system-activated license plate photo of the

non-transponder-equipped vehicle passing under the gantry. System accuracy under operating conditions has improved but currently remains less than ideal resulting in some uncollected tolls.

The key risk to ETC, particularly ORT, is toll evasion and the potential for growing enforcement and collection costs. Fitch will use historical data to arrive at a reasonable toll violation rate for each facility. Fitch will evaluate projected toll evasion rates as well as enforcement and collection costs relative to actual data for the toll facility, if available, or for peer facilities. In addition, Fitch will review administrative, legal, technological, and enforcement strategies and measures undertaken by the toll facility operator in concert with law enforcement and vehicle and driver licensing agencies to minimize toll evasion. To the extent that a detailed historical track record is not available, Fitch will apply a worst-case assumption based on comparable industry data. It is important to note that while Fitch identifies and will stress the risks of ETC, the overall operational and financial consequences of these systems will likely result in a net positive impact on credit quality over time.

■ Legal Framework

The legal framework under which a toll road operates is among the more significant qualitative factors that Fitch considers in rating toll facility debt. Taken together, the nature of the legal authority and associated requirements found in financing documents can have meaningful impacts on credit risk, leading to improvements to the underlying credit quality of the asset in some cases or to credit ceilings in other cases, notwithstanding the facility's underlying economic or financial metrics.

Authority to Operate and Toll

The legal documents that establish both the authority under which the facility can be constructed, operated, and tolled and the operating and financial performance requirements placed on the operator are extremely important as they provide the legal foundation upon which a debt financing can then be built. The legal authority will vary based on the nature of the obligor. Public obligors should have unambiguous statutory language enacted by local, state/provincial, or central governments that establishes the responsibilities and power of the entity. Private obligors should be party to an agreement that delegates the rights granted to the public sponsor or to an agreement based on established concession or contract law. An investment-grade rating may not be

achieved if there is an absence of concession or contract law or precedence for the legal standing of the arrangements being contemplated. In Fitch's view, the authority to build, operate, and toll will be viewed more positively if it is granted at the highest sovereign level possible, such as a state or provincial government in the case of a local or regional toll facility or the central government in the case of a national roadway.

Investors in toll roads expect their credit exposure to be derived strictly from the toll road. Consequently, legal structures supporting the financings must be ring-fenced to protect investors from external credit risks. Without ring-fencing, revenues of facilities leased or owned by private obligors may be at risk in the event of the bankruptcy or other credit problems of such owners, related parties or other projects owned or operated by the project owner. Such risks and consequent necessary protections to investors vary by country. In the context of such local laws, Fitch evaluates the organizational documents, including articles of incorporation, partnership agreements and trust documents to ensure that project finances are remote from such external credit risks. The enforceability of the bondholder remedies (such as share pledges and step-in rights) in the event of default will also be reviewed in this context. Fitch will rely on legal opinions, issued by local, reputable, expert legal counsel, addressing the enforceability of bondholder remedies and structural credit protections. An opinion addressing the risk of consolidation between the operator/obligor and any parent (nonconsolidation opinion) may also be required by Fitch. Where relevant, the absence of a nonconsolidation opinion will likely limit the credit rating of the toll road to the lower one of the project rating or the corporate parent.

Once the legal foundation is in place, the ability to generate revenue is the next step in a viable financial structure. A key rating consideration for toll facility debt is the legal framework under which a public or private obligor can raise tolls to cover financial obligations. The nature of toll rate regimes varies widely from the unlimited nature of most public entities to the more limited nature associated with private obligors under concessions, leases, or licenses. In countries where national law and/or government policy tightly controls rate setting, there also tend to be provisions for compensation in the event of adverse statutory or regulatory action (for example, changes in toll policy or competing infrastructure, among others). Fitch views positively the presence of legal protections that foster financial

equilibrium under the concession. Fitch views unlimited rate-making authority as providing the most credit protection, as opposed to rate-making authority limited by a formula or subject to regulatory approval. Limited or no legal revenue-raising flexibility can constrain credit quality — likely at best to the 'A' rating category for stand-alone projects — even if economic and financial metrics are robust.

Concession, Lease, or License Agreements

The concession, lease, or license agreement must clearly transfer the relevant authority to the private party and establish reasonable performance requirements to be met by the private obligor in order to maintain the right to operate and toll the project. Fitch will review the relevant documents for clear standards that the private obligor must meet for road condition, safety, level of service, and future expansion of the existing roadway or the addition of other facilities. While Fitch believes that the profit-motive provides private obligors an incentive to keep the road in good operating condition, it is important that legal documents adequately align those incentives.

The inability of governments to accurately anticipate future public policy objectives or network capacity needs requires that flexibility be built into concession documents. In Fitch's view, needed expansion of existing facilities to maintain satisfactory levels of service or the eventual construction of competing facilities (road or transit) are events likely to occur during the course of long-term concession or ownership agreements. Given the likelihood of consequent disputes arising between the contracting parties from unforeseeable events, legal documents should include a process through which such unanticipated disputes can be managed. Fitch considers the inclusion of economic leveling mechanisms (through compensation payments, easing of concession requirements, or extensions of term, among other things) as essential from a credit standpoint. Furthermore, while such provisions promote long-term financial stability, their absence increases the risk that disputes may result in government and/or concessionaire actions that undermine investor security.

Negative credit events are likely to manifest themselves if the public sponsor's objectives are not met, regardless of contract language protecting the operator. Public dissatisfaction can result in charges and determinations of nonperformance under the contract, whether merited or not. As a result,

concession, lease, or license agreements should include lender step-in rights upon a default for nonperformance or other such events as well as a reasonably sized cure period that allows for sufficient time to replace the defaulting operator before any termination is triggered.

Termination under a concession, lease, or license agreement can occur for a variety of reasons, including force majeure, operator default, default by the public sponsor, or an early termination decision on the part of the public sponsor. Fitch will positively view clearly established termination conditions and procedures that result in a full take-out of the outstanding debt, especially in a termination for convenience and a force majeure event (where a decision is made by the public sponsor not to rebuild). In the latter event, the requirement for the use of applicable insurance proceeds for debt take-out could commensurately reduce the termination payment. Treatment of such proceeds as concession revenue and requirements for deposit directly with the trustee for debt defeasement are also important.

Financial Covenants, Remedy, and Flow of Funds

In addition to authority to raise tolls and provisions for performance and termination, the financial covenants, the flow of funds and remedies under an event of default contained in the financing documents can have significant impacts on credit. A key underpinning to the economic and financial rationale for a credit rating is the financial covenant package. For an investment grade rating on toll facility debt Fitch will require the following financial covenants/requirements.

For obligors with fixed amortization (suitable for toll roads with predictable operating profiles, mainly public obligors):

- A minimum toll revenue requirement (referred to as a “rate covenant” in the U.S.) requiring the maintenance of debt service coverage from net toll revenues (i.e. after O&M) of at least 1.25x and coverage of all obligations (including subordinate debt payments, reserve deposits and mandatory capital expenditure set-asides) of at least 1.00x will be viewed positively for public obligors. Such covenants are also a credit positive for private obligors as they could permit rate increases in excess of the prescribed rate-setting framework. Public obligor rate covenants are often “soft,” in that a violation only requires a consultant be hired to provide

recommendations. Documents that trigger an event of default if toll rate covenant violations persist for a period of a few years (as little as three years in certain instances) will be viewed positively. Such covenants, when judicially tested and enforced, as in the U.S., can enhance the prospects of timely debt service payment and improve recovery.

- An additional bonds test tied to the rate covenant or other limitations on additional debt. A strong historical and projected (coverage) test can act to support a higher credit rating if it effectively limits leverage.
- A fully funded debt service reserve fund or a combination of an operating and maintenance reserve and a renewal and replacement reserve.

For obligors with flexible amortization (suitable for toll roads with a growing, but unpredictable profile, including both public and private obligors):

- Toll-rate covenants and additional bond tests tailored to the chosen structures that enhance bondholder security are essential. Projected tests that incorporate the escalating nature of debt and the future economic value of the facility can provide additional protection.
- Cash sweep or equity lock-up requirements if debt service and loan-life coverage ratios fall below certain levels are necessary for an investment-grade rating to ensure structural subordination of equity. The debt service coverage ratio (DSCR) level at which the lock-up takes place will be a function of the amount of risk in the revenue profile and should involve an assessment of historical and projected performance. The lock-up level will likely be higher than the rate covenant under a fixed-debt structure given that principal may not be amortizing or a portion of interest may be capitalizing. In Fitch’s view, forward-looking equity distribution covenants and covenants to deleverage are important to the achievement of investment-grade ratings on transactions with flexible amortization schedules, term loan structures, bullet maturities, or accreting debt structures.
- Debt structures with a planned refinancing or those that rely on the ability to refinance will be viewed more positively if they incorporate a covenant requiring the obligor to begin best efforts to refinance well in advance (up to five years for long-dated refinancing scenarios, i.e. in excess of 15–20 years) of the scheduled

refinancing or the point at which one would be necessary under a stress case. Establishment of an event of default under the documents if an acceptable refinancing plan is not in place at least a year before final maturity or payment default is projected would provide added assurance that a timely remedy will be implemented in debt structures not actively managed by lenders. Fitch will evaluate alternative approaches to minimizing refinance risk, including the use of soft or staggered bullets. Fitch will also consider management's experience and track record in accessing the debt markets and executing refinancings.

- A fully funded debt service reserve fund or the equivalent availability of committed liquidity, adequate supplemental liquidity accounts subject to minimum performance requirements for release, and adequately sized capital expenditure or renewal and replacement reserves.

Loan or bond documents should require the expeditious transfer of revenue to trust-held accounts while minimizing third-party bankruptcy risk. They should also require that the annual operating and maintenance expense budgets be evaluated and adjusted to meet the requirements established by an independent engineer. Forecasts of upcoming renewal and replacement and operating expenses, and associated annual deposits to fund such expenses should also be evaluated and adjusted to meet the requirements established by the independent engineer. Publicly managed facilities are subject to less precise and stringent operating and reinvestment mandates. To ensure adequate investment in ordinary maintenance and reinvestment, Fitch will positively view the added requirement that minimum required deposits based on those recommendations be incorporated into the system or project's toll rate covenant.

Regardless of public or private control, the financing documents also need to incorporate lender step-in rights to cure covenant or payment defaults. In the case of concessions, this should occur well before a termination. For public obligors such rights should include the ability to raise tolls and replace the operator.

The flow of funds in a debt structure needs to be designed to align the interests of debt-holders with those of management. Payment of O&M prior to any other expenditure is essential to ensure uninterrupted flow of revenue. Public obligors may choose to pay

for mandatory capital expenditures further down in the flow due to the lack of overt performance risk, but private obligors are subject to this risk and as a result these expenditures need to be treated similar to O&M and paid ahead of debt service. In the case of public obligors, the risk is more political and the ramifications less clear. Senior debt service (and parity net swap) payments followed by reserve deposits and subordinate liens of debt add layers of credit protection. Similarly, subordinating swap termination payments to the corresponding lien of debt and deeply subordinating external distributions (nonsystem and equity returns) to all toll facility needs serve to provide credit enhancement. The lack of cross-default or acceleration from defaults on subordinate lien obligations, including swap termination payments, to senior lien obligations and liquidity facilities is a credit positive

■ Construction Risk

As with other types of projects, construction risk often constitutes the greatest risk in the credit quality chain of a stand-alone toll road project. In certain circumstances, it can constrain the rating to a level below what it would be after completion. While construction risk is an important consideration for projects involving the addition to and expansion of existing toll road systems, tolls generated from the system's operating segments and available liquidity help to mitigate this risk to a degree. Completion risk refers to the risk that the road will not be completed on time, on budget, or up to the required performance standards. For strong, economically viable projects, construction completion risk can be mitigated and investment-grade ratings can be achieved. Irrespective of whether the project is categorized as greenfield or brownfield (addition, modification, or extension to an existing road) or sponsored by a concession or owned and managed by a government authority, Fitch will carefully consider the project's complexity and technology, projected costs, delay risk and quality of contractors, and terms of the construction contract.

Toll roads vary widely in complexity, ranging from two-lane highways on flat terrain to multilane superhighway corridors traversing rugged topography or waterways requiring bridges, tunnels, cantilevered alignments, and other highly engineered components. Fitch relies on the expertise and opinion of independent and reputable engineers (I/Es) to evaluate the design specifications of the project and the reasonableness of the development cost estimates and ongoing maintenance expenditures. The role of

the I/E is crucial during the development phase, as one of the critical tasks is to monitor the works process, milestone compliance, and critical path or schedule. Typically the I/E also approves the release of escrowed funds to compensate the contractors from proceeds of rated debt.

After completion, the I/E is usually relied upon to monitor a project's compliance with the terms of the concession agreement between a government authority and a concessionaire, or bond indenture for a publicly owned facility, particularly for repairs and maintenance. Construction quality and proper maintenance are fundamental for toll roads as they are long-lived assets that can support long-term, nonrecourse financing. The I/E's assurances regarding construction quality and maintenance represent a vital link between the toll road (the asset) and the financing's structure, particularly when it incorporates accretion, bullet maturities, and refinancing incentives.

Project complexity will affect the likelihood that the road will be completed on time (delay risk). Delays can also occur due to permitting, stop work orders, availability of critical equipment or labor, weather or seasonal conditions, and other factors. Delays which cannot be controlled by the contractor, such as force majeure and permitting or right-of-way acquisition, must be addressed by other means, such as compensation from the government or insurance. Of note, potential delays and construction cost overruns caused by incomplete, ambiguous, or evolving specifications, beyond the customary and often inevitable work changes requested by either the sponsors or contractor, are of great concern. Fitch expects projects financed by the capital markets will be undertaken on the basis of minimal design risk. Neither Fitch nor the I/E has the capacity to estimate the ultimate effect on project costs and cash flows from material changes in design once a project has initiated construction, especially if appropriate mechanisms, such as completion and performance guarantees from sponsors, governments or solid third parties, are insufficient or not provided.

Construction Contracts

Ideally, the project sponsor (government authority or concessionaire) will undertake the toll road project under a fixed-price, turnkey, appropriately drafted engineering, procurement, and construction (EPC) contract with an experienced and creditworthy contractor. The contract is designed to achieve construction at the lowest price by insulating the operator and lenders from changes in the price of

materials and runaway labor costs. The contract also protects against delay risk through incentives for early completion and penalties (liquidated damages) for delays. Performance milestones are specified to ensure that the facility can begin generating toll revenues with adequate cushion before financing obligations begin. An EPC contract will be expected to be legally consistent with the ownership structure of the project as well as the terms of a concession. While an EPC framework is particularly important to mitigate completion and cost risks for stand-alone toll road projects, it is also beneficial for projects involving the expansion and/or extension of existing systems. Nevertheless, Fitch recognizes that public or private toll road system operators may not incorporate all of the features of an EPC contract for expansion or extension projects given the financial protections offered by their current liquidity position and revenues generated by existing operating segments.

Recognizing the complexity of some projects and the preference in certain cases to undertake construction through joint-ventures (JVs) between a key contractor or among a group of contractors and subcontractors, Fitch will focus on all relevant agreements in addition to the EPC contract to ensure that there is appropriate operator and lender protection against nonperformance, price increases, design flaws, bankruptcy of a member of the joint venture, or force majeure. In the case of comparatively complex greenfield facilities for which a key contractor or JV undertakes significant financial commitments, the credit quality of the contractor or JV might constrain the toll-backed debt, especially when the contractor or JV is rated 'BB' or lower. The presence of adequate liquidity, construction contingencies, a standard security package, and third-party support will be viewed more positively allowing ratings to exceed that of the contractor.

Fitch also expects the project documents will provide for mechanisms to replace a nonperforming contractor or member of a JV and a clear, efficient dispute resolution mechanism with timely decision periods. Absence of these standard protections will likely limit credit quality. For systems undergoing reconstruction or expansion, the lack of these protections might result in negative credit action, depending upon the financial profile of the operator and management's response to problems. Contracts are also reviewed for clauses protecting lenders against termination. In particular, Fitch will expect adequate provision for contractor replacement and project cash flow protection in the event the owners

exercise step-in rights or eventually terminate the construction contract.

■ Sovereign and Counterparty Risk

The analysis of toll road project debt might also include a review of sovereign risk and government support, project essentiality, and reliance on commitments from various parties, including the sponsors, guarantors, and contractors. In particular, the commitments and undertakings of governments are especially relevant, as more toll roads are being developed under public-private partnerships, but irrespective of the degree of private sector participation, toll roads are often supported by shadow tolls, government subsidies, and revenue guarantees. Although private developers are more likely than governments to deliver projects on time and on budget, the capital-intensive nature of toll roads and the limited capacity of certain weaker toll roads to fully cover all operating, repair, and debt service costs justifies capital contributions and operating subsidies from government.

Government

Toll roads serve a public purpose and are, therefore, subject to either direct control or close regulatory oversight of either a national government or local authority. Whether a project will, in fact, be developed, its scope, design specifications, cost, economic viability and other characteristics are largely determined by political considerations. Political and country risks are, therefore, an important element in the analysis of a toll road and can, in certain cases, limit the creditworthiness of project debts. In emerging markets, in particular, toll roads financed in the global capital markets will be especially vulnerable to governments' shifts in capital spending priorities, public finance management, macroeconomic fluctuations, and inflationary pressures, as well as sovereign risk (foreign exchange controls and transfer restrictions).

In highly rated countries, it is unlikely that the rating of a toll road will be constrained by the country ceiling. However, to the extent that the project's debt repayment capacity depends on shadow tolls, subsidies, minimum revenue guarantees, and other support contingent on road performance, availability, or need, Fitch will focus on the credit worthiness of the government counterparty, including management of public finances, as well as the legal framework and administrative procedures employed to provide for the shadow toll or revenue support. Of note, Fitch

does not regard the probability of default of government support for a project to be equivalent to sovereign financial obligations. Government obligations under a concession that are not clearly designated on parity with the government's debt obligations, which is typically the case, will be viewed as having weaker credit quality, even in highly rated countries. This is due to the de facto lower priority assigned by governments to contractual obligations relative to debt service. Contractual obligations with respect to a project, moral obligations, cooperative endeavors, and other forms of contingent support are usually budgeted for separately from debt service and subject to annual appropriation by legislatures.

The nature and magnitude of the government's commitment with respect to a toll road project usually reflect the essentiality of the project. Fitch views project essentiality as a favorable credit factor when economic viability is complemented by users' willingness to pay charges or tolls. Essentiality will also bolster the credit quality of roads that are vital to the economic development of a region or nation. Roads that provide the best or most efficient means for transporting industrial production or interconnecting areas that comprise an important share of the regional output will define the top end of the credit scale.

Nevertheless, a government may wish to have a road developed that contributes marginally to a regional or national economy. Often these roads are regarded by governments as high-priority projects due to their strategic importance, i.e., they will serve to interconnect isolated or undeveloped areas with economically vibrant ones or link international borders. The success of the financing and development of some of these roads might depend not only on ongoing subsidies but also capital contributions made by the government. Projects regarded by governments as strategic priorities that are not economically viable on their own are often best financed with maximum support and/or guarantees from subnational, national, bilateral, or multilateral development entities, given their inability to reliably repay toll-backed debt.

Especially for concession-developed projects, the responsibility of acquiring rights-of-way, which is ideally suited to the government, is one example of the considerations examined by Fitch. Residual claims from property owners against the concession or the project of wrongful expropriation or inadequate compensation, and allegations of property

value degradation resulting from the project's development are costs that are best assumed entirely by the government. Likewise, changes in law that negatively affect the project's debt repayment capacity as a result of reductions in the subsidies or other payments due to the concession, tax increases, more burdensome environmental regulation, and new or costlier decommissioning expenditures will limit the rating unless explicitly and satisfactorily addressed in the concession agreement.

Sponsors

The undertakings of sponsors are as relevant to Fitch's credit analysis as those of governments. A clear indication of long-term commitment and importance of the project to the sponsor is the magnitude of the equity invested in the project. This is of particular value to greenfield projects that rely partly on government subsidies. Generally, the more equity invested in the project, the less likely it is the project will not be completed. In addition to equity capital, managerial and technical expertise demonstrates long-term commitment and support.

Conversely, the project's contribution to revenues and profits of the sponsors' portfolio of roads or assets also indicate a strong likelihood the sponsor will see the project through completion and ensure efficient operations and procure cost-effective financing. The nature of the commitments and the sponsors' ability to undertake them are of particular concern in the analysis of roads developed in areas where permitting, community opposition and government interference impede timely completion and successful operations.

Guarantors

The credit quality of guarantors is often a key factor in Fitch's rating analysis of toll roads. As with other types of projects, unconditional guarantees are the preferred method of mitigating the construction completion risk of projects rated investment grade. Guarantees of solid third parties and adequately structured performance bonds are particularly valuable when the contractor is committed to compensate the project for delays through liquidated damages and the contractor's own liquidity or access to credit is limited.

The obligations of a low-rated government with respect to a project, such as subsidies or minimum revenue guarantees, are also often backstopped by multilateral agencies and insurers that are rated

substantially higher than the government and the project. In such cases, Fitch will focus on a thorough review of the insurance contract or policy and the claims payment process. In Fitch's experience, generally the policies are insufficient to mitigate the likelihood of default on a project when the government fails to comply with its obligations. Namely, the arbitration, claims, and recovery process undertaken by the project, the government and the guarantors will require more time to complete than is afforded by the debt repayment schedule.

However, Fitch recognizes that these guarantees can be valuable in at least two significant ways. First, governments are more reluctant to default on obligations with projects if as a result of noncompliance, essential funding from a multilateral agency is jeopardized. Second, insurance proceeds can enhance the recovery of defaulted amounts from an insured project above the amounts that would have been received if the project had not been insured. Consequently, the rating of the project's debts will consider the recovery value derived from insurance or guarantees. In situations where the time horizon for recovery can be predicted, structured liquidity for that purpose may be used to enhance credit quality.

■ Financial Profile

An important consideration in Fitch's credit analysis of toll roads is the financial flexibility that the issuer retains to support the full and timely repayment of debt. Entities with strong financial profiles will tend to achieve high investment-grade credit ratings, and those ratings will rely more on the flexibility retained by management to respond to changing conditions. Entities with weaker or more leveraged financial profiles will tend to achieve low investment-grade ratings at best, and those ratings will rely more on the flexibility structured under the legal framework into the transaction. As such, Fitch's analysis assesses the factors discussed in the following sections.

Flexibility to Absorb Completion Risk

The level of dependence on the timely and successful completion of construction projects on future cash-flow is a key factor. Fitch will evaluate structural protections to assess the project's ability to make full and timely debt service payment under reasonable stress scenarios. Stand-alone projects in construction face the greatest risk from cost increases and delays and have a greater need for all these protections as debt holder security is entirely dependent on project revenue being generated. On the other extreme,

systems with the ability to cross-subsidize among their asset portfolio using currently operating segments to support increased levels of debt service for rehabilitation, improvement, and expansion elements face the least risk. While they can benefit from such protections as prudent business practices, the rating will be less dependent on the structural protections but more on management's track record in this area. Stand-alone projects in construction, operating projects, and highly and slightly leveraged systems will be evaluated for their relative level of flexibility within that continuum. Simple construction of roads with no river crossings, tunneling, or major environmental concerns will be expected to tolerate up to a six-month delay in completion and a 5%–10% cost escalation. More complex construction will be expected to tolerate six- to 24-month delays in completion depending on the type of facility and cost escalations of 10%–20%.

Flexibility to Absorb Forecasting Risk

The level of dependence of debt servicing ability on the accuracy of traffic and revenue forecasts is also a key factor. Fitch will evaluate the level of conservatism along a similar continuum to that of completion risk. Credit strength will be determined based on the ability to cushion Fitch-stressed downside traffic risk. Forecasts for projects in construction with no comparative track record of traffic and revenue performance will be most critically evaluated. The use of internal liquidity to support debt service in a Fitch stress scenario in the early years of operation will be viewed as consistent with a low investment-grade rating to the extent that there is a high probability that liquidity levels will not be fully depleted before performance strengthens and provides acceptable current levels of debt service coverage. It is also important that there be a reasonably strong expectation that essential liquidity accounts will be subsequently restored to required levels in a relatively short period. Forecasts for systems with long track records that require minimal levels of adjustment by Fitch for analytical purposes will be viewed more positively.

Dependence on Toll Rate Increases

The latent ability to raise tolls over time to respond to changing circumstances is an important factor in evaluating financial flexibility. Finance plans that seek to maximize toll rates to their economic and/or legal limits retain less flexibility to use toll increases as a means to strengthen their financial position. On the other hand, those that assume minimal, sub-

inflationary toll increases will retain considerable financial flexibility. The degree of flexibility will be determined by the demand profile, the extent of backloaded debt, and management policy.

Flexibility to Absorb Capital Expenditures

All toll roads require some reinvestment in order to maintain their peak operating capacity. Those with low, predictable capital maintenance needs that have been accounted for in the financial forecast with reasonable contingencies will, all else being equal, likely achieve higher ratings. Those with predictable, but higher cost, capital improvement, and expansion needs will need greater levels of financial cushion for cost increases to achieve similar ratings. Lastly, those with wide-open mandates that generally retain high levels of financial flexibility may achieve high investment grade ratings, but those ratings may be constrained if there is uncertainty as to the level and timing of future investment. Fitch will positively view the timely set-aside of reserves in advance of future capital spending that result in a smoothed out cost profile.

Level and Structure of Debt

The ability of the toll road to support the prescribed debt structure is of critical importance. Fixed debt service profiles are best suited to toll roads with a very predictable operating profile and manageable levels of leverage. Start-up and established operating facilities with high levels of leverage and uncertain cash-flows require a more flexible debt structure that conforms to the economic and financial profile of the toll road as it changes over time. Fitch recognizes the growing long-term value of toll roads and will give credit to that growing strength. Structures that lower default risk, especially in the near-to-medium term through the use of flexible maturities, prepayment mechanisms, and refinancing provisions, will be viewed more positively. While the use of these techniques may be consistent with an investment-grade rating, the dependence on them for full and timely payment, along with the use of longer maturities and escalating debt service structures, will limit achievement of high investment-grade ratings. Fitch is generally comfortable with user-pay toll roads debt structures that demonstrate full and timely repayment of all interest and principal within 50 years, or for shorter concessions, within a commensurate period with a reasonable tail.

Appropriateness of Variable-Rate and Swap Structures

The use of variable-rate debt and swaps or similar interest rate hedging mechanisms to actively manage interest rate risk within a toll road's asset-liability profile is considered appropriate if tailored to the financial, legal, and political flexibility of a toll road. Toll roads with strong levels of financial flexibility, i.e. those with high levels of debt service coverage, rate-making flexibility and internal liquidity, and low-to-moderate leverage, are better suited to absorb variable-rate exposure and swap termination risk. The appropriate level of exposure will be a function of the level of financial flexibility to respond to stress situations that include sharp increases in interest rates. Start-up projects with completion and revenue forecasting risks are generally unable to absorb interest rate volatility and are therefore not suited for variable-rate debt. Fitch views nominal interest rate movements as being neutral given the general ability to raise toll rates with inflation in situations where the rate-setting framework permits inflationary increases. However, the limited ability to pass on real interest rate movements constrains a toll roads ability to absorb interest rate volatility. Fitch will develop stress scenarios that are appropriate to the particular economic environment.

The aggressive use of swaps will be viewed negatively. The use of nonstandard and illiquid swap structures will be reviewed on a case-by-case basis. The use of speculative swap strategies will be viewed negatively. Provisions that limit the rights of swap counterparties to those of debtholders, restrict swap termination to a default on the senior debt and subordinate termination payments will be viewed positively.

Flexibility to Absorb Refinancing Risk

Incorporating refinancing risk into debt structures may be appropriate, especially in instances where the future revenue profile cannot be predicted with certainty. While this might apply to almost any user-pay toll road, it is particularly important to start-up projects and long-lived concessions. To account for market access risks, Fitch shall assess the ability of the structure to meet ongoing debt service obligations from cash flow and internal liquidity for five years beyond the first year that a refinancing may reasonably be contemplated, and the ability of future cash flows to support a significant increase in interest cost at the time of the refinancing, such as 200–400 basis points (base stress case) in the middle of the

economic cycle. Higher and lower stresses will be applied in very low and very high interest-rate environments, respectively.

Flexibility to Absorb Currency Risk

Fitch will evaluate the ability of the toll road's cash flow and liquidity to absorb reasonable scenarios for currency devaluation and transfer and convertibility controls. To the extent that these are meaningful risks, the flexibility built into the structure will be important to achieve the desired rating. Offshore trust accounts and guarantees from highly rated multilateral agencies can provide some level of risk mitigation.

Mix of Equity and Debt

Fitch views the presence of sponsor equity as being an essential contributor to credit strength. The amount of equity will largely be a function of the risk profile of the toll road. Besides making a toll road financially feasible, equity provides evidence of a commitment to the successful development and operation of the facility.

The equity stake of public sector owned and operated toll roads will be assessed through a combination of state ownership, project development costs incurred from public sources, and through the maintenance of untapped future economic value. Fitch defines untapped economic value as the net present value of future cash flows after operating and mandatory capital expenditures, taxes (if applicable), etc. minus outstanding debt. Fitch will conservatively calculate future cash flows using toll rate increases at the legal rate-setting maximum or the minimal toll elasticity level it has determined, whichever is lower.

The equity stake of private entities will be assessed through the initial contributions that are retained in the transaction by the sponsor (including upfront equity, committed contingent equity from a creditworthy counterparty and deeply subordinated, nonrecourse, sponsor-held debt) and through the maintenance of untapped future economic value. Projects facing construction and traffic risks need a higher equity commitment versus those in steady-state operations. Amortizing user-pay toll roads with shorter concession periods (less than 30 years), and shadow toll and availability payment arrangements will likely demand 10%–25% equity commitments depending on their risk profile. For established, highly leveraged user-pay toll roads, with long-lived negative or nonamortizing debt structures (with 30–

Project Life/Loan Life Coverage Ratios

Project life and loan life coverage ratios (PLCRs and LLCRs, respectively) are important tools used to assess the ability of a project on a forward-looking basis to generate cash flow for debt service based on an established tariff or rate regime. In doing so, they measure the overall financial position of a project relative to its financial obligations. They look beyond the chosen method of debt amortization and the ability to support debt service on a current basis (as a debt service coverage ratio [DSCR] does) and instead look to the ability to meet obligations over the life of a bond or loan for the LLCR or a concession agreement as in the case of the PLCR.

The LLCR is defined as a ratio of the net present value of project resources (internal liquidity at the time of the projection and available future cash flow for debt service until the legal maturity of the debt) from any point onward to total outstanding debt obligations at the time of the projection. Internal liquidity includes any reserves available to pay debt service, including balances in revenue accounts and operating reserves, debt service reserve funds, additional equity or liquidity accounts, and surplus funds tied within the bond indenture. Cash flow available for debt service is usually defined as operating revenues (from tolls, fees, charges, rental and investment income, etc.) net of operating and maintenance expenses, mandatory capital expenditures, and applicable taxes. The denominator is outstanding debt at the time of the projection. LLCRs can be calculated for all liens of debt (senior, junior, subordinate, etc.). The discount rate used to present value future cash flow available for debt service is the weighted-average cost of debt at each lien position.

A PLCR is similar to an LLCR, except that it factors in the cash flow generation capacity of the project beyond the scheduled maturity of the debt (i.e., it incorporates the value associated with the “tail” of a concession). As a result, the PLCR is more useful in evaluating refinancing risk (if structured into the transaction) and in recovery or loss severity analysis. For recovery purposes, the use of stressed cash flows is appropriate. PLCRs and LLCRs prove useful in structures (public and private) that incorporate flexible amortization and ultimate recovery. These ratios provide an efficient means to evaluate the financial flexibility available to protect against overleverage and ensure ultimate repayment.

50 year repayment expectations), a minimum 25% equity stake through a combination of sources, as defined earlier, will be viewed positively.

Fitch will recognize the growing value of most user-pay toll roads in this evaluation. As a result, the prudent repayment of equity over time through additional leveraging by a public or private sector sponsor will not be viewed negatively, as long as growing future toll road or concession value adequately compensates for the equity take-out.

Benchmarks of Performance

Assessments of financial performance over time are important elements in the analysis of financial flexibility. Debt service, loan life, and project life coverage ratios will be used to assess a toll road’s balance of financial flexibility (cash flow, liquidity and rate-making flexibility) to leverage. Minimum ratio levels to achieve an investment-grade rating will depend on the nature of the facility and the source and length of time available for debt repayment. User-pay toll roads will generally require Fitch base case DSCRs of at least 1.30x, Loan life coverage ratios (LLCRs) of at least 1.50x and project life

coverage ratios (PLCRs) of at least 1.75x., and Fitch stress case at least DSCRs of 1.00x (including use of internal liquidity), LLCRs of 1.25x and PLCRs of 1.50x. Those that incorporate any form of negative amortization and are dependent on a long-dated refinancing will require at least a PLCR of 3.00x (excluding internal liquidity) to achieve investment-grade ratings if the planned window of refinancing is about 20 years. Increasing levels of PLCR will be required if the planned window of refinancing is beyond 20 years.

Shadow toll- and availability payment-based roads will be subject to lower thresholds given the lack of traffic risk and the more moderate tenors of these arrangements, with Fitch base case DSCRs of at least 1.10–1.15x, depending on the credit quality of the O&M provider, and LLCRs of at least 1.30x.

Fitch will calculate LLCRs and PLCRs both including and excluding internal liquidity. Importantly, Fitch will exclude liquidity provided by repayable forms of debt, such as letters of credit.

Covenants to Maintain Financial Flexibility

Given the move to increasingly back-loaded debt structures and longer dated debt maturities, the inability to see into the future with certainty, and the added risk of changing conditions, commitments to debt holders that provide added assurance that financial flexibility will be maintained are essential. Besides the standard covenants and tests used historically for toll roads (discussed under the Legal Framework Section), an additional forward-looking test that restricts equity distributions if financial performance falls below a specified level is a key element of a strong lender covenant package. This is even more pertinent for very long-lived concessions (30 years and more) using negative or non-amortizing debt structures. Such a test would annually assess the future value of the concession and commit to manage leverage by maintaining a minimum PLCR of 3.00x during the planned window of any refinancing or beyond 20 years, whichever is shorter. The lack of a covenant to annually perform this test and deleverage to the prescribed level will be viewed negatively by Fitch.

Flexibility to Absorb Event Risk

It is Fitch's opinion that toll roads should be able to absorb events that are reasonably expected to occur with a high degree of certainty over the life of the debt based on actual experience, such as natural disasters (hurricanes, earthquakes, wildfires, tornados, and floods, among others) or manmade events (war, expropriation, transfer, and convertibility limitations, among other things) that could undermine bondholder security. Toll road structures exposed to such risk will be further stressed based on reasonable expectations for occurrence and severity of such events and will achieve investment-grade ratings only if they are able to support full and timely debt service under these conditions. The adequacy of internal and external liquidity, appropriately structured insurance (including business interruption insurance), and latent rate-making flexibility will be key factors in Fitch's analysis. Stand-alone projects will likely have their ratings capped at 'A+' to reflect single-facility revenue risk. Systems with geographic and economic diversity will not be similarly constrained.

■ Fitch Base and Stress Cases

To assess the ability to repay debt in a full and timely manner, Fitch will first evaluate the economic profile of the project and then layer onto it any legal, financial, and policy constraints. To accomplish this, Fitch will initially design base and stress cases solely based on economic factors that incorporate reasonable scenarios that can occur based on Fitch's experience with the industry as a whole and with similar projects. Fitch limits this analysis to developed economies. While many of the principles identified will apply in developing economies, tailored assumptions may be necessary based on local experience and broader legal, political, economic, and financial considerations. The application of each of the factors identified will be a function of the type of the toll road (start-up or established, among others), the level of conservatism in key finance plan assumptions, and the level of financial flexibility maintained. Most of the factors will likely apply to user-pay toll roads while a subset will apply to availability payment and shadow toll roads.

For each factor, Fitch identifies an analytical approach and a range of possible adjustments. The level of adjustment within the identified ranges will be function of the nature of the project and its risk profile, and Fitch's assessment of the conservatism or aggressiveness built into the sponsor's plan of finance. Fitch will then layer non-economic factors to finalize its base and stress cases. Generally, Fitch's base case will be more conservative than the sponsor's base case, as it seeks to establish a scenario that is highly probable under normal conditions, i.e. it eliminates any in-built optimism in the assumptions. Fitch's stress case then seeks to assess the ability of the structure to withstand a combination of severe, but reasonably probable stress situations while still paying debt service on a full and timely basis.

The level of financial flexibility that remains to absorb further downside events will be an important driver of the rating. Toll roads with minimal remaining flexibility will at best achieve low investment-grade ratings. Toll roads with higher levels of remaining flexibility will be able to achieve 'A' and 'AA' ratings.

Appendix: Characteristics of a Typical Toll Road Analysis in Developed Economies that Is Consistent with Investment-Grade Ratings

	Fitch Base Case	Fitch Stress Case
Construction		
Simple Project		
Cost	0%–5% overrun	5%–10% overrun
Schedule	Zero to three-month delay	Three- to six-month delay
Complex Project		
Cost	0%–10% overrun	10%–20% overrun
Schedule	Three- to 12-month delay	Six- to 24-month delay
O&M Growth		
Established	Five- to 10-year historical average, excluding one-time savings, with a minimum of inflation	Base case assumption plus 1%
Start-Up	Adjust initial year base by 0%–10% Inflation plus 1%–2%, excluding start-up and ramp-up costs	Base case assumption plus 1%
Traffic Growth		
Established		
First 10 years of Forecast	Five- to 10-year historical average adjusted for asset maturity, capacity constraints, expected demand, and peer group profile	Base case assumption
Years 11–30 of Forecast	Tapered reductions based on the above factors down to the low single digits approaching expectations for regional traffic growth	Base case assumption minus 0%–1%
Years 31–50 of Forecast	0%–1% growth depending on the facility profile	0% growth
Start-Up		
Opening Year Base Traffic	Lag in likely economic growth/development between the base/calibration year of the study and planned construction completion, at least five years	Base case assumption accompanied by a slower ramp-up in economic development
	Discount value of time assumption by 25%–50% ETC violation rates up to 10%	Discount value of time assumption by 50–75% ETC violation rates up to 15%
Years 2–10 Forecast	Discount truck traffic levels by 25%–50% on regional roads; and 15%–30% on national roads Underlying economic fundamentals of project based on traffic study and peer group profile	Discount truck traffic levels by 50%–75% on regional roads; and 20%–40% on national roads Base case assumption accompanied by acceleration of competing network facilities
	Ramp-down of discount on value of time assumption over three to seven years	Ramp-down of discount on value of time assumption over five to nine years
	Ramp-down of ETC violation rates to 5% over three to five years	Ramp-down of ETC violation rates to 5% over five to nine years
Years 11–30 of Forecast	Increase in truck traffic at 1%–3% above auto traffic volumes	Increase in truck traffic at 0%–2% above auto traffic volumes
	Tapered reductions for asset maturity, capacity constraints, expected demand, and peer group profile approaching expectations for regional traffic growth	Base case assumption minus 0%–1%
Years 31–50 of Forecast	0%–1% growth depending on the facility profile	0% growth
Toll Rate Increases		
Established		
First 10 Years of Forecast	CPI plus 50–200 bps	CPI plus 0–100 bps
Years 11–20 of Forecast	CPI plus 0–50 bps	CPI minus 0–50 bps
Years 21–30 of Forecast	CPI minus 0–50 bps	CPI minus 50–100 bps
Years 31–50 of Forecast	CPI minus 50–100 bps	CPI minus 100–150 bps
Start-Up		
First 10 Years of Forecast	CPI plus 0–100 bps	CPI plus 0–50 bps
Years 11–20 of Forecast	CPI plus 0–50 bps	CPI minus 0–50 bps
Years 21–30 of Forecast	CPI minus 0–50 bps	CPI minus 50–100 bps
Years 31–50 of Forecast	CPI minus 50–100 bps	CPI minus 100–150 bps

O&M – Operations and maintenance. Bps – Basis points. ETC – Electronic toll collection. CPI – Consumer Price Index. Note: The economic analysis developed using the above methods will be subject to legal and policy constraints. This analysis assumes that all standard protections to minimize construction risk have been incorporated. Simple projects are assumed to be those that do not have difficult construction conditions, significant environmental challenges, and do not incorporate significant water crossings, bridges, or tunnels. Fitch Ratings will use applicable historical local, regional, and/or national inflation indices to develop inflation-indexed inflators. Toll increase rates identified are assumed to be minimal elasticity levels in normal, low-to-moderate inflationary environments that are in the middle of the economic cycle. Fitch will develop alternative scenarios in periods of very high or very low inflation vis-à-vis historical trends.

Appendix: Characteristics of a Typical Fitch Ratings Analysis in Developed Economies to Achieve Investment-Grade Ratings (Continued)

	Fitch Base Case	Fitch Stress Case
Financial Ratios		
User-Pay (Amortizing Structures)		
Minimum DSCR	1.30x	1.00x (Including internal liquidity)
Minimum LLCR	1.50x	1.25x
Minimum PLCR	1.75x	1.50x
User-Pay (Long-Dated Negative or Non-Amortizing Structures)		
Minimum DSCR	1.30x	1.00x
Minimum PLCR	3.00x	2.00x
Shadow Toll and Availability Payment (Amortizing Structures)		
Minimum DSCR	1.15x	1.05x
Minimum LLCR	1.30x	1.20x
Refinancing Risk		
Interest Rate Assumption	Current rates plus 200 bps	Current rates plus 400 bps
Discount Rates on Future Cash Flows		
For LLCR/PLCR Calculations	Weighted average cost of debt	Weighted average cost of debt
For Asset Valuation	Weighted average cost of capital (equity and debt)	Weighted average cost of capital (equity and debt)

DSCR – Debt service coverage ratio. PLCR – Project life coverage ratio. LLCR – Loan life coverage ratio. Note: For negative or non-amortizing debt structures, Fitch will evaluate the minimum PLCR during the planned window of refinancing or beyond 20 years, whichever is shorter. Interest rate assumptions to evaluate debt structures with refinancing risk are assumed in the middle of the economic cycle. Upward and downward adjustments will be made in periods of very low and very high inflation to incorporate then current probabilities for interest rate movements.

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Ratings

Public Finance Criteria: Toll Road And Bridge Revenue Bonds

[Back](#)

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Public Finance Criteria: Toll Road And Bridge Revenue Bonds

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Quick Links

[Traffic Demand](#)

[Competition](#)

[Management](#)

[Operations](#)

[Feasibility Study](#)

[Legal Provisions](#)

[Financial Projections/Debt Structure/Sensitivity Analyses](#)

[Public Private Partnerships: Revenue/Debt and Equity Considerations](#)

The heavy costs associated with construction and maintenance of roadways and bridges normally require large amounts of debt, even for publicly owned toll roads. The sizable debt burden, combined with the presence of competition, the potential for fuel shortages, toll sensitivity, and shifting demographic and economic factors, make it difficult for a revenue bond issue secured solely by tolls to receive a Standard & Poor's Ratings Services rating above the 'A' category. However, several well-established toll facilities, particularly toll bridges with limited competition and U.S. state toll authorities with very stable demand, low rates and well-defined capital programs now maintain ratings in the 'AA' category. For privately owned toll roads that benefit from very long-term concessions, but are highly leveraged, high investment-grade category ratings are difficult to achieve given the high debt levels relative to cash flow generation, combined with the ongoing pressures to distribute equity to shareholders.

Traffic Demand

Toll road ratings focus on traffic demand as the most essential ingredient for a financially successful operation. For "green field" or "start-up projects" construction risk also demands significant analysis. Strong demand for a toll facility is vital to its successful operation and the ability of the facility to generate toll revenues. Most U.S. toll roads have been, and will be developed in heavily traveled corridors with a demonstrated need to relieve traffic congestion and reduced travel time for motorists. However, in some cases, demand for improved service has not been strong enough or developed fast enough to generate revenues sufficient to cover the operation and maintenance expenditures of the facility, as well as debt service. This is particularly true for new toll roads, expansions or extensions built in anticipation of future development. In other instances, the healthy, vibrant economic base that had supported the system deteriorated, resulting in flat or declining traffic flow.

Typical questions to pose when evaluating these projects include:

- Is the project a new road or bridge to ease congestion on

overcrowded existing roads, or is it designed to spur or in expectation of new development?

- What is the composition of vehicles between commercial and private vehicles as well as trip purpose?
- Will all access roads or connecting roads not under direct control of the project team be in place prior to the completion of the project? Ultimately, how do the timesavings provided by the toll facility relate to the toll structure?

Answers to these questions begin to identify the various strengths and weaknesses of a project and what information will be needed for Standard & Poor's analysis. Toward this end, Standard & Poor's expects a detailed feasibility study reviewing the underlying economic underpinnings and project-specific issues that result in the projected traffic and revenue forecasts. The forecasts should clearly state all assumptions used and extend through the debt offerings repayment term. In some instances, Standard & Poor's may request an independent evaluation of the traffic report (should the feasibility report be generated by the project sponsor) to verify and collaborate the reasonableness of assumptions and methodologies applied.

Evaluating the economic strength and diversity of the toll road's region is integral to the rating process. Standard & Poor's will analyze the region's wealth, income, and employment indicators, as well as a host of other factors. While a sound and growing economic base usually ensures a high level of commercial and business-related travel, the level of disposable personal income has a direct bearing on the volume of discretionary and recreational trips. Commuter or short-haul traffic, indicated by such measures as average trip length, largely depends on local economic conditions. However, those toll facilities directly connected with other major thoroughfares are shielded to an important degree from local economic conditions.

An examination of total traffic trends is not sufficient. The nature and composition of that travel, as well as its vulnerability to business cycles, changes in fuel prices, and toll elasticity are also critical. While commercial traffic serves as a stabilizing force, most successful toll roads or bridges have a good balance between commercial and private-vehicle trips. Commercial traffic is less sensitive to toll increases than private-sector traffic since, for all but the marginal carriers, additional costs can eventually be passed on to customers. Fuel prices have, on an inflation-adjusted basis, remained very low and, historically, price increases have not had a dramatic effect on travel or gasoline consumption trends. However, the long-term effects of significantly higher oil prices, on a real basis, on traffic and demand levels are unknown.

Within the private travel sector, a breakdown of nondiscretionary (business) and discretionary (recreational) trips is useful. Business-related trips, while obviously sensitive to levels of economic activity, tend to be less so than recreational travel. As a general rule, a diverse traffic mix cushions the impact of a decline in any one segment.

Demand is affected by demographic characteristics and local economic performance. However, for start-up toll roads, Standard & Poor's also assesses the overall acceptance of tolls in the region as the economy in the area may be vibrant but the road users must also demonstrate a willingness to pay tolls.

[↑ back to top](#)

Competition

Since most toll roads and bridges are designed to relieve existing traffic congestion or reduce commuting time in a heavily traveled corridor, well-planned projects generally encounter little competition in the immediate years following an opening. Nonetheless, subsequent development of toll-free thoroughfares can attract traffic away from a toll facility.

In assessing the potential for such competition, Standard & Poor's examines the capital improvement program of the appropriate state or federal department of transportation, as well as the plans of regional and local transportation commissions and the private sector. Where a high degree of cooperation exists among various levels of governmental transportation departments and private toll operators and authorities, the likelihood that competing roadways will be developed is lessened. A lack of coordinated planning is behind almost all cases where toll-free roadways were constructed to the detriment of a toll facility. In addition to standard issuer meetings, discussions or meetings with the appropriate national, state and local transportation planning boards are helpful.

Where competitor facilities exist, especially free competitors, as is often the case with congestion relief projects, the level of traffic diversion projected from the existing roadways to the new road is an important indicator of project success. Projects with conservative diversion factors tend to be viewed more favorably. If start-up traffic history and diversion levels exist for other local facilities, whether free or tolled, it can further help to analyze the forecast traffic.

The key to a facility's competitive analysis is the cost-benefit analysis that drivers make in the form of timesavings or increased access versus cost. If, in the mind of the decision maker, the new road does not get one to work faster or allow deliveries fast enough to recover the cost of the toll, the project is not likely to succeed. The use of electronic toll collection (ETC) systems has improved traffic flows, though it is not clear that such systems produce overall annual savings relative to manual toll collection systems given the pace and scale of technological reinvestment of second, third and fourth generation systems. It is also uncertain what the impact of such ETC systems on the overall elasticity of demand if users of the system do not easily notice toll increases. Clearly, the introduction of electronic toll collection will allow for more efficient and potentially variable toll changes, ultimately giving operators more revenue-maximizing options. With the increased use of ETC systems also comes a thorough analysis of the toll road operator's violation rates and its violation enforcement system process.

[↑ back to top](#)

Management

In addition to assessing management's overall ability to coordinate its activities with planning boards and governmental bodies, Standard & Poor's evaluates management in the context of quality of planning involved in the budget-making process for operations, maintenance, and capital improvements. For existing systems with an operating history, successful financial performance serves as a broad measure of management capabilities. The degree of autonomy enjoyed by the directors of a toll facility has an important bearing on its capacity to manage. Of particular importance is the ability and willingness of management to increase tolls as needed.

When the level of a rate increase is limited by concession

agreement terms or governmental approval, a history of being able to increase toll rates when needed to the maximum level allowed is considered a positive. It is also considered a strength if ratemaking decisions are shielded from normal political processes or influence. Failure to increase toll rates when needed because of intervening political influence is a frequent situation with existing facilities that Standard & Poor's has evaluated.

[↑ back to top](#)

Operations

Evaluation of maintenance procedures is also somewhat difficult. While it is fairly common practice for toll road entities to hire independent engineering firms for periodic facility inspections and to determine the need for repairs, the reports derived from these surveys often are general in nature and offer limited insight to third parties. Moreover, members of the engineering profession often have differing views on what constitutes adequate maintenance.

Nevertheless, several considerations can be useful in determining the quality of maintenance. Operators that retain their own engineering staffs, capable of conducting frequent inspections, may be better equipped to plan and budget for repairs and perform preventive maintenance than those systems that rely entirely on outside engineering firms for less frequent inspections. The utilization rate of the facility, that is, the number and type of vehicles traversing the roadway for a given time period, provides a good indication of the relative need for resurfacing and repair. Clearly, a facility that allows access to the heaviest of motor vehicles will suffer greater roadway deterioration and require a larger maintenance budget than a system with a comparable level of traffic limited to lighter-weight vehicles. Operating and capital reserve accounts are common in toll road projects and cover risks associated with excess usage. These reserves are typically funded at levels recommended by engineering staffs or consultants. However, for established toll facilities the lack of these reserves might also be acceptable based on some combination of their historically high unrestricted cash balances, high debt service coverage levels, and demonstrated toll rate flexibility.

With start-up toll roads, projected annual operating costs (on a per mile or per kilometer basis) that are similar to other existing toll roads with similar operational and construction qualities can often provide an initial level of comfort and the starting point for further analysis.

[↑ back to top](#)

Feasibility Study

Finally, in reviewing a capital improvement program or extension to an existing system, Standard & Poor's considers the project's feasibility. Feasibility, as determined by an independent engineering firm, can be an important tool in the credit analysis. A well-documented feasibility study includes:

- An overview of the existing facility.
- A market and demand analysis that examines the following factors: demographic patterns; historical and projected traffic patterns; traffic mix (by type of vehicle and nature of trip); competing facilities; historical and projected toll rates; and, where practicable, the sensitivity of motorists to various toll levels.
- A financial analysis examining revenues and operating

costs, as well as projecting the impact of planned improvements and competitive highways. The financial analysis should demonstrate the degree of financial stress that a new project, or roadway expansion, may place on existing operations and income levels.

A set of sensitivity runs or analyses are critical for all start-up facilities and for all existing facilities that are undergoing a significant capacity addition. However, the sensitivity analysis will vary on a case-by-case basis depending on the degree of historical information available and the aggressiveness of assumptions in the forecasts. Standard & Poor's evaluates the reasonableness of the assumptions supporting these forecasts. Assumptions regarding future traffic growth rates and operating costs should be based on historical patterns, with forecasts that greatly exceed historical levels likely adding credit uncertainty.

In evaluating the traffic and revenue forecasts, Standard & Poor's ultimately looks to the coverage of annual debt service by net revenues taking into account expenses, capital expenditures and other operating obligations in addition to revenues. When toll rate adjustments are linked to changes in inflation or when toll rate increases require the approval of governmental authorities, coverage of debt service by net revenue is an extremely important credit factor. In these circumstances, the ability to raise toll rates in real terms may be limited.

However, depending upon the management objectives of the operator (e.g. revenue maximization versus cost-recovery) the specific level of coverage of annual debt service by net revenues may not be as important when there is a strong and demonstrated willingness to raise rates as needed. In fact, a toll facility with lower coverage ratios and with considerable flexibility for increasing real tolls could be perceived as a stronger credit than a system with higher coverage ratios and limited capacity for raising tolls.

[↑back to top](#)

Legal Provisions

While legal protections for bondholders vary considerably, almost all toll road authorities provide a margin of safety by pledging to levy tolls at levels that will produce net revenues (after payment of Operations and Maintenance expenses) equal to debt service plus a coverage multiple. The most common ratio used in a toll covenant is 1.25x. The value of a covenant with debt service coverage appreciably higher than 1.5x is questionable, depending on the sensitivity of motorists to higher tolls and the practical ability to raise tolls when needed. The speed with which a toll rate increase can be implemented is a critical rating factor. If rate adjustments require approval of elected officials, delays can ensue. On a few occasions, authorities have been in technical default because of such delays.

As with all revenue bonds, additional bonds tests that include only historical revenues are significantly stronger than any test allowing projected revenues. Specifically, tests with projected rather than historical revenues serving as the basis for calculating future debt service coverage significantly reduce the value of such a test, but are relatively common. In these cases the relative conservativeness of management—and their projections—will be a factor in how a prospective test is viewed.

A debt service reserve, fully funded at the equivalent of one year's debt service requirement, can provide significant liquidity to bondholders, particularly given a potential for delays in

implementing required rate increases.

Additionally in some cases, states have enhanced the security for toll revenue bonds by pledging state-levied highway user tax receipts, or a straight GO backup.

[↑ back to top](#)

Financial Projections/Debt Structure/Sensitivity Analyses

One traditional measure of financial strength for toll revenue-backed facilities and project bonds is debt service coverage. Typical coverage for many existing U.S. operating toll facility is in the 1.5x-2.0x range for debt service from net revenues, as many provide for significant pay-as-you-go capital costs after operations and debt service. Standard & Poor's believes that investment grade start-up facilities should reach or exceed these coverage levels to offset many of the risks indicated above. Toll road transactions structured under a corporate model where senior unsecured debt is offered should provide solid interest coverage ratios and should have a long enough concession term to allow for re-financing and ultimate debt repayment.

For start-up facilities, the amount of debt that a project must support establishes the hurdle, in the form of debt service, for which the project must exceed. The existence of equity or subordinated debt positions or contributions from private investors, local, state, or federal governments can serve to lower the bar, making the project more affordable, and hence more creditworthy. A debt service schedule that is relatively level over time also allows more flexibility than an upwardly increasing schedule that keeps the pressure on constant growth through traffic or rate increases.

Sensitivity analyses are also typically requested to simulate normal or historic changes in economic conditions, traffic declines, operating and capital cost increases, and tariff adjustments to help gauge the project's ability to withstand change. Where projections are critical to future financial condition, Standard & Poor's will typically also request low, no-growth and break-even sensitivity cases.

[↑ back to top](#)

Public Private Partnerships: Revenue/Debt and Equity Considerations

The recent multi-billion dollar privatizations of the Indiana Toll Road and the Chicago Skyway represent not only an enormous change in US toll road financing, but also in global toll road financings. These two financings mark a departure from the typical 25-35 year project finance model and has led to significantly different debt structures. The basic analytical considerations in evaluating these transactions remains the same with regard to demand, competition, management, and operations and our analysis still follows a combination of existing toll road criteria and project finance criteria. However, the debt levels tend to be significantly higher and debt repayment tends to extend significantly beyond the traditional 20-30 year period.

Furthermore, the debt associated with these transactions tend to use defer pay structures and rely on refinancing. To date, these transactions have occurred with respect to existing toll facilities with demonstrated strong cash flow generation, which has enabled them to support the higher debt levels. In addition, the longer amortization periods are aided by concession terms that are considerably longer (75-99 years) than in the typical

concession financing. Debt levels would have to moderate significantly in a privatization of a start-up facility even with a very long-term concession period.

The challenge of long-term concession periods is in evaluating the traffic and revenue forecasts and feasibility studies. Planning or macro-economic forecasts, which are key inputs into most traffic models, themselves, only stretch as far as 10-20 years into the future. Additionally, demand models generally remain incapable of capturing structural adjustments to travel markets—such as the longer-term impacts of changes to preferences, relative pricing, technology and so forth. To address this concern, Standard & Poor's takes a conservative approach to longer-term traffic forecasts, reducing growth-rate expectations over time to reflect increasing uncertainty and unforeseen events that could result in real declines. While the approach to toll rate setting under a private operator model will focus more on revenue maximization, price elasticity is nonlinear. Mid- to far-term growth rates exceeding 1% per year are unlikely to be considered in our analysis and, depending on the assets characteristics, this could be capped at zero. Similarly, in evaluating projected tariff increases, revenue projections will be adjusted only for reasonable inflationary corrections. It is under this traffic and revenue profile, that Standard & Poor's looks to see that all debt can be re-paid prior to the end of the concession term. While high growth rates may be achievable and the potential for strong revenue generation over the long-term may exist, this becomes more speculative in the far-term and inconsistent with the certainty required for investment-grade ratings.

The revenue generation profiles of toll roads more naturally fit amortizing debt structures. However, current financing trends has seen debt structures with a blend of multi-tranche debt with different amortizing profiles including bullet maturities and other nonamortizing debt instruments. One key aspect of our analysis is to determine whether or not the project cash flows can support the peak debt service levels that such instruments can introduce later in the concession term.

To date, Standard & Poor's has evaluated a limited universe of such credits and our views are still evolving. However, at present it is envisioned that for such very strong mature assets, is that peak accreted debt would occur in the first 15-20 years of the concession (depending on the concession term); 50% of the maximum accreted debt would be repaid within 30-40 years; and all of the debt would be repaid by the 45th to 50th year of the concession term, leaving an ample refinancing tail should traffic and revenues not meet expectations. These are guidelines and each long-term highly leveraged toll road concession would be evaluated on their own merits but the concept of limiting debt accretion and requiring debt to be paid down well before the end of the concession term remain the same.

Transactions with bullet maturities introduce refinancing risk. An investment grade rating might be difficult to achieve if more than 20% of total debt is due to be retired in any two consecutive years. Refinancing risk is manageable in long-dated concessions with a sufficient refinancing tail of about 10-30 years. Financial models, however, will be examined to understand the assumptions being made about refinancing such as the interest rate employed and stress tests will be used to evaluate the sensitivities of the transactions to less favorable interest rate assumptions. Investment grade structures will typically have secured appropriate hedging arrangements in this regard.

With private ownership of toll facilities, equity considerations are

introduced into the legal structure. As deferred pay structures are introduced, it also means that early year coverage ratios are over inflated, giving a misleading indication of project performance. Furthermore, deferred pay structures can result in leaving free cash flow available for equity distributions prior to any substantial debt repayment. Standard & Poor's views projects as having less risk where dividends are to be distributed only when project performance is in-line with or exceed expectations, and is likely to continue to do so.

In this context, Standard & Poor's analyzes the issuer's proposed dividend distribution lock-up covenants. These lock-ups are generally set at levels just below the financial model's base case minimum debt service coverage ratio for investment grade credits. The closer the permitted dividend distribution test is to the minimum coverage ratio, the better the subordination relationship between equity and debt. Dividend lock-up tests also focus on the number of consecutive years that must pass (following dividend) lock-up before dividend outflows recommence. Forward-looking tests provide for a stronger structure.

Finally, the issuance of additional debt for shareholder distributions require that the additional bonds test for such purposes be set at a higher ratio than for leveraging for other reasons, such as capital expenditures.

[↑ back to top](#)

Appendix D: Laws Governing Washington State Debt

Debt in Washington State

Article VIII, Section 1(d) of the state Constitution defines state debt to mean borrowed money represented by bonds, notes or “other evidences of indebtedness” which are either (1) secured by the full faith and credit of the state, *or* (2) “required” to be repaid, directly or indirectly, from “general state revenues,” *and* which are incurred by the state, any department, authority, public corporation or quasi-public corporation of the state, any state university or college, or any other public agency created by the state. Under Article VIII, Section 1(i) of the State Constitution, the Legislature must prescribe all matters relating to the contracting of state debt by the favorable vote of 60 percent of the members elected to each house. With respect to obligations that constitute state debt, Article VIII, Section 1(j) of the state Constitution provides that the Legislature “shall provide by appropriation for the payment” of principal and interest on all such debt as it falls due, but in any event any court of record may compel such payment.

Section 1(d) of Article VIII goes on to clarify that obligations for the payment of current expenses of state government and certain other specific obligations, such as voter-approved debt, are not included under the constitutional definition of “debt.” Accordingly, if the state borrows money and its repayment is backed by either the full faith and credit of the state or a requirement that payment be made from general state revenues, the state has contracted debt unless a specific constitutional exemption applies.

In addition to having the power to issue debt, Washington has the power to issue revenue bonds.

Debt Limit

In addition to defining debt, the Washington State Constitution limits the amount of state debt, using a formula established by law. The amount of debt for which the state can contract is limited by Article VIII section 1(b) such that the “aggregate debt contracted by the state shall not exceed that amount for which payments of principal and interest in any fiscal year would require the state to expend more than nine percent of the arithmetic mean of its general state revenues for the three immediately preceding fiscal years as certified by the treasurer.”

In addition to the debt limit set forth in the Constitution, there is also a statutory debt limit set forth in RCW 39.42.060 that prohibits the issuance of any debt that would cause the “aggregate debt contracted by the state to exceed that amount for which payments of principal and interest in any fiscal year would require the state to expend more than seven percent of the arithmetic mean of its general state revenues, as defined in RCW 39.42.070, for the three immediately preceding fiscal years as certified by the treasurer in accordance with RCW 39.42.070.” The definitions of

“debt” and “general state revenue” are not exactly the same for the purposes of computing the constitutional debt limit and the statutory debt limit, but the basic concept is that the statutory debt limit was intended to be more restrictive than the constitutional debt limit.

With some exceptions, the most notable of which is general obligation/motor vehicle fuel tax bonds, general obligation bonds are subject to the state debt limit. Certificates of participation in financing contract entered into under 39.94 RCW are not subject to the state debt limit based on case law (the *Department of Ecology* case).

Constitutional and Statutory Limitations on Debt

The current constitutional framework went into effect in 1972 when voters adopted Amendment 60.

The State Constitution imposes a 30-year maximum term on debt:

“The state may contract debt, the principal of which shall be paid and discharged within thirty years from the time of contracting thereof, in the manner set forth herein...” (Article VIII, Section 1).

The State Constitution also imposes a debt limit. Debt is capped at an amount supportable by principal and interest payments in any year equal to 9% of the average of the prior three years’ General State Revenues. In 1979, the Legislature adopted a 7% Limit (RCW 39.42.060) within the 9% Limit (Article VIII, Section 1); this was amended in 1983, 1993, 2001 and 2003.

Bonds that pledge MVFT are subject to constitutional limit of 30-year maximum term but are *not* subject to the constitutional debt limit.

State-issued revenue obligations are not subject to the constitutional debt ceiling or any limit on maturity date.