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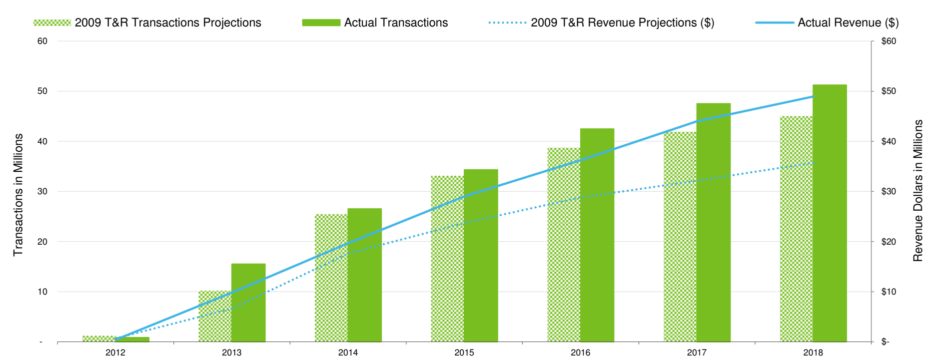
North Carolina Turnpike Authority (Triangle Expressway)

Update to credit analysis

Summary

Triangle Expressway continues to demonstrate better than originally forecasted revenue and transaction performance since the start of operations six years ago, supported by its position as an important congestion reliever in an area with strong population and solid economic growth. The flexible rate-raising ability and satisfactory structural protections available to bondholders and the explicit support provided by the State of North Carolina (GO rated Aaa) also help mitigate some of the risks associated with a back-loaded and escalating debt service profile. In order to comfortably meet its growing debt service profile, the 18.8 mile toll road needs to continue its pattern of higher than inflationary growth post ramp-up for several years to come before reaching stabilizing growth levels.

Exhibit 1
NCTA Triangle Expressway Performance



Source: Moody's Investors Service; North Carolina Turnpike Authority

Credit strengths

» Strong support from the State of North Carolina (Aaa, stable) through legislative actions, state appropriation support, and a guarantee by the NCDOT to pay for any shortfalls in operations and maintenance and renewal and replacement expenses

» Strong regional demographics with population and employment growth well above national and state averages and a highly educated work force. Region benefits from the stability of significant government employment in the state capital Raleigh (GO rated Aaa) and institutional employment at a number of large universities in the area, as well as the growth from technology based employment at the Research Triangle Park

» Operating and financial results have been better than forecast since opening in December 2012.

» Automatic toll rate adjustments, with any changes subject to NCTA board's discretion, albeit limited track record of toll rate increases

» Strong legal covenants including a rate covenant test and above average additional bonds test provide substantial protection to bondholders

Credit challenges

» Bond indenture allows funds to flow to non-system projects if revenues exceed 1.3 times annual debt service requirements which could reduce the amount of financial flexibility available to manage unexpected changes in revenues or costs

» Back-loaded amortization profile requires consistent traffic growth to meet expected coverage metrics.

» Still limited operating history relative to other roads with longer operating history and demonstrable stable track record of performance during changes in economic cycles, although thus far actual traffic and revenue results have exceeded original forecast

» Upcoming large Complete 540 project could add significant additional leverage

» Reduction of senior debt service reserve requirement with 2018 TIFIA refunding

Rating outlook

The stable outlook is based on the continued strong traffic and revenue performance expected for FY 2019.

Factors that could lead to an upgrade

» Traffic and revenue growth continues to exceed projections on a sustained basis

» Scheduled rate increases that allow for the maintenance of 3.0x senior debt service coverage ratios (DSCRs) on a net revenue basis

» Longer term state projects such as the NCDOT's Complete 540 southeast extension lead to higher level of traffic and revenues on the corridor

Factors that could lead to a downgrade

» Lower than projected revenues due to either lower transaction volumes or lower toll rates

» Liquidity levels not commensurate with its rating level

» Any reduction in the financial or policy support provided by the state or further reductions in interest subsidies associated with federal sequestration

» Significant increase in leverage to fund alternate projects, without commensurate increase in traffic and revenues

Key indicators

Exhibit 2
NCTA Triangle Expressway Key Indicators

	2015	2016	2017	2018
Total Transactions ('000)	34,346	42,475	47,514	51,236
Total Transactions Annual Growth (%)	29.4%	23.7%	11.9%	7.8%
Toll Revenues ($000)	30,218	38,473	44,708	48,999
Toll Revenue Annual Growth (%)	24%	27%	16%	10%
Debt to Operating Revenue (x)	20.9	16.4	14.0	13.8
Days Cash on Hand	2,018	1,859	1,827	1,496
Senior Lien Debt Service Coverage By Net Revenues (x)	2.11x	2.64x	2.93x	3.18x
Total Debt Service Coverage By Net Revenues (x)	0.96x	1.10x	1.17x	1.27x

Note: Debt to operating revenue ratio excludes all outstanding state appropriation bonds

Source: NCTA audited financial statements; Moody's Investors Service

Profile

The Triangle Expressway project is a single asset 18.8 mile toll road with three lanes in each direction, located in Wake and Durham counties in North Carolina. The expressway extends from the interchange of Interstate 40 (I-40) and NC Highway 147 on the north end to the NC Highway 55 Bypass near Holly Springs, N.C., on the south end. The road also extends the planned and partially complete Outer Loop around the greater Raleigh area.

The toll road serves as a major alternative to the heavily used NC 55. The Expressway also improves access to the Research Triangle Park and other area employment centers. The project was the first constructed by the NCTA, which was created by the North Carolina legislature to look for alternative funding for key transportation projects statewide.

Detailed credit considerations

Revenue Generating Base

The 18.8 mile toll road has been operational since December 2012. Toll rates increase at all tolling locations by 2.5% on an annual average basis over the 2013-2051 period, based on a pre-approved schedule by the NCTA Board of Directors.

Major free competition comes from the parallel NC 55 also known as Apex Highway, a two lane (in each direction) surface arterial that roughly parallels NC540/NC147 and I-40 to Durham in the northwest of the metro area.

Financial Operations and Position

Toll revenues were $48.9 million in FY 2018 (year-over-year growth of 11.2%) and transactions reached 51.2 million (an increase of 7.8% from FY 2017). Both traffic and revenues are expected to continue to surpass the original projections, as a result of the completion of the Veridea Parkway Interchange (formerly known as Old Holly Springs-Apex Road Interchange), which opened to traffic in April 2017, as well as continued growth on the corridor. The interchange is located between the US 1 interchange and the NC 55 Bypass interchange on the southern end of the Triangle Expressway.

Due to federal sequestration, interest subsidy payments associated with the Build America Bonds (BABs) were reduced by 6.6% in FY 2018 and 6.9% in FY 2017. The cash subsidy payment totaled $10.8 million in FY 2018, compared with $11.3 million in FY 2017. A continuing or permanent reduction in federal funding of BABs interest subsidy payments would mean that less residual revenues will be available to support debt service payments, after paying debt service on state appropriation bonds. Moody's notes however that this has a limited impact on the forecasted debt service coverage ratios.

FY 2018 audited results show senior debt service coverage ratio of 4.05x on a bond ordinance basis versus 4.34x in FY 2017. On a total basis, including the TIFIA loan, coverage was 1.62x in FY 2018 versus 1.65x in FY 2017. Moody's calculated senior and total DSCRs for FY 2018 were 3.18x and 1.27x respectively, excluding state appropriation debt service.

With the recent refinancing of the 2009 TIFIA loan with senior lien revenue bonds in December 2018, the estimated senior DSCR for FY 2019 is 2.33x, prior to declining to the 1.7x range through 2028 as debt service escalates, according to the preliminary offering statement.

Capital Projects

NCDOT's 2018-2027 State Transportation Improvement Program (STIP) includes multiple construction projects associated with the Triangle Expressway, two of which are the Morrisville Parkway Interchange (under construction) and Complete 540 (under development). Construction on the Morrisville Parkway Interchange began in Q4 2017 and the interchange is scheduled to open to traffic in Q3 2019. Funding for both the Veridea (opened to traffic in April 2017) and the Morrisville interchanges comes from $27 million of unexpended bond proceeds, contributions from the local towns and funding from the State Highway Trust Fund. Both interchanges are expected to generate additional revenues for the Triangle Expressway system; NCTA anticipates increases in toll revenues versus the original forecast of 5.9% and 4.0% associated with the Veridea Parkway Interchange and the Morrisville Parkway Interchange, respectively.

Complete 540, also known as the Southeast Extension, will extend the Triangle Expressway from the N.C. 55 Bypass in Apex to the U.S. 64/U.S. 264 Bypass in Knightdale, completing the 540 Outer Loop around the greater Raleigh area. The extension is expected to be positive for the Triangle Expressway, with a direct connection to I-40. The entire project, which has three segments and a total of approximately 27 miles of highway, is estimated to cost $2.2 billion and would be funded in phases. The authority produced design plans, and prepared technical reports and environmental documents to meet the requirements of the National Environmental Policy Act (NEPA). NEPA approved the Record of Decision in June 2018.

Complete 540 - Phase I consists of two adjacent segments that make up 17.8 miles of roadway. The authority is expecting to award contracts in early 2019, begin construction in FY 2020 and open to traffic by January 1, 2024. The remaining portion of the project, Complete 540 - Phase II, is expected to begin construction in FY 2027.

The authority intends to issue additional senior lien revenue bonds and TIFIA loans in order to finance the costs of Complete 540. It is uncertain at this time the total level of additional leverage which will be included as part of the Triangle Expressway's capital budget. Negative credit pressure could arise if the authority substantially increases the leverage of the Triangle Expressway system without a commensurate level of anticipated increase in traffic and revenues.

LIQUIDITY

The project had 1,496 days cash and 1,827 days cash as of FY 2018 and FY 2017 respectively, primarily in its general funds account. The road's liquidity is significantly above the sector median of 1,331 days cash, but below the toll road sector median for start-up facilities of 1,827 days cash. Liquidity is expected to come down somewhat as the authority uses the unspent bond proceeds to fund the remaining interchange project.

Debt and Other Liabilities

NCTA completed three refundings since March 2017, which have resulted in a total present value economic savings of approximately $53.3 million. In March 2017, the authority issued $201 million of senior lien revenue refunding bonds in order to refund majority of the Series 2009A Triangle Expressway Senior Lien Revenue Bonds (NPV savings of $32.2 million). The remaining $600 thousand of Series 2009A bonds will mature on January 1, 2019. In May 2018, the authority issued $150 million of state appropriation revenue refunding bonds in order to refund a portion of the outstanding Series 2009B Triangle Expressway State Appropriation Revenue Bonds (NPV savings of $10.9 million). Separately, the authority entered into a Forward Bond Purchase Agreement for a refunding of a different portion of the 2009B Bonds scheduled to close on or about December 31, 2018. The refunding is being done as a private placement with NPV savings of $18.8 million.

In December 2018, the authority issued $401 million of senior lien revenue refunding bonds in order to refund the remaining 2009 Triangle Expressway TIFIA loan (NPV savings of $10.2 million).

As of June 30, 2018, the authority had approximately $687.1 million of Triangle Expressway debt outstanding (including TIFIA accrued interest and excluding state appropriation bonds). The state appropriation bonds are subject to appropriation of the funds from the state, and federal subsidies under the Build America program, and therefore are not included in Moody's calculation of total debt. Any residual appropriations or grants are eligible for debt service on the revenue bonds.

Exhibit 3

NCTA Triangle Expressway Debt Outstanding as of June 30, 2018

Triangle Expressway Debt (amount in thousands)	Outstanding at FYE 2018
Revenue Bonds Series 2009A	$600
Capital Appreciation Revenue Bonds Series 2009B	$35,173
Senior Lien Revenue Refunding Bonds Series 2017	$220,974
TIFIA Note Triangle Expressway Revenue Bonds (including accrued interest)	$430,406
Total	**$687,153**
State Appropriation Revenue Bonds Series 2009B	$190,930
Appropriation Revenue Refunding Bonds Series 2018	$157,038

Source: NCTA audited financial statements

The authority has a growing debt service profile which will require a continued higher than inflationary revenue growth over the next few years prior to stabilizing at a lower level of growth in order to meet its debt service requirements.

As a result of the TIFIA loan refunding in December 2018 with senior lien revenue bonds, Triangle Expressway's total debt outstanding is now only comprised of senior lien revenue bonds.

DEBT STRUCTURE

Legal Security

The lien on pledged revenues of the Triangle Expressway system securing the bonds makes them senior to all other indebtedness at the facility. The receipts flow first to pay debt service on the bonds, then to the senior lien reserve fund. The flow of funds is an open loop, which allows receipts to flow out of the bottom bucket subject to meeting a 130% total coverage test.

There is a 1.30 times senior lien rate covenant and a 1.10 times covenant on total debt service requirements. Additional senior lien bonds may be issued once NCTA has met the rate covenant for at least 12 of the past 18 months and revenues are forecasted to remain above 140% of senior lien debt service and 130% of debt service for all outstanding debt.

With the refunding of the 2009 TIFIA loan in December 2018 with senior lien revenue bonds, the previously cash funded senior debt service reserve was replaced with a surety from Assured Guaranty Municipal Corp (A2, Stable), and reduced from its prior maximum annual debt service for the forward looking five year period to 50% of the least of (i) maximum debt service, (ii) 125% of the average annual debt service requirement, and (iii) 10% of the stated principal. Post refunding of the 2009 TIFIA loan, the senior reserve account requirement will be $34.17 million. We view this reduction in debt service requirement to be credit negative.

NCDOT has also agreed to fund any shortfall in NCTA's O&M reserve fund and the R&R fund.

NCTA revenues are enhanced by $25 million of state appropriation funds that have been included as a recurring item in the state's budget. The state appropriation funds first flow to pay debt service on the state appropriation revenue bonds, which are augmented by a Federal subsidy that supports the $191 million appropriation bonds outstanding under the Build America Bonds program as of June 30, 2018. Since debt service on these bonds will be less than the appropriation and federal subsidy through 2021, excess appropriations will support prefunding of NCTA's reserve accounts and augment revenues during this period.

Additional structural protections include a provision requiring the NCTA to refund all or a portion of the outstanding senior lien debt if the rate covenant is not met for two consecutive years beginning two years after project completion. If NCTA fails to complete the refunding, it is subject to an additional premium on its bond insurance costs. There are a number of provisions that exempt NCTA from this requirement including market conditions that don't allow the bonds to be restructured above 1.75 times or certain major changes in the legislative, banking, or securities sectors. Moody's believes this provision brings some uncertainty regarding the longterm structure of the debt. Also, the potential for greater bond premiums due to underperformance creates the potential for additional budgetary stress in a period when underperformance is likely already creating budgetary stress and reducing available cash flows.

DEBT-RELATED DERIVATIVES

None.

PENSIONS AND OPEB

The NCTA's permanent full-time employees is a member of the Teacher's and State Employee's Retirement System (TSERS), which is a defined benefit pension plan administered by the North Carolina State Treasurer.

Moody's adjusted net pension liability (ANPL) in FY 2018 for the NCTA is $2.4 million, compared to its reported net pension liability of $483.1 thousand. Unfunded pension liabilities have only a nominal impact on NCTA's Triangle Expressway's financial metrics given its sizeable total debt outstanding of over $629 million (excluding state appropriation bonds) that is expected to increase over the next several years.

Moody's adjusts the reported pension liabilities of entities that report under governmental accounting standards, to enhance comparability across rated issuers. Under governmental pension accounting, liabilities are discounted using an assumed rate of investment return on plan assets. Under our adjustments, we value liabilities using a market based discount rate for high quality taxable bonds, a proxy for the risk of pension benefits.

Management and Governance

The asset is managed by North Carolina Turnpike Authority (NCTA). The authority is empowered to design, establish, purchase, construct, operate and maintain turnpike projects identified by the North Carolina General Assembly, including the Triangle Expressway. The authority is governed by a nine member board, consisting of four members appointed by the General Assembly of North Carolina, four members appointed by the Governor of the State, and the Secretary of Transportation for the state is also a member. The authority board selects the executive director of the authority, who is responsible for the daily administration of the toll projects undertaken by the authority.

Other Considerations: Mapping to the Grid

The grid is a reference tool that can be used to approximate credit profiles in the toll road industry in most cases. However, the grid is a summary that does not include every rating consideration. Please see Government Owned Toll Roads for more information about the limitations inherent to grid.

The Baa2 rating assigned differs from the scorecard outcome of Baa1 as the rating recognizes future escalating debt service and debt accretion not captured in historical metrics, as well as the fact that higher than inflationary growth is required over the next few years prior to reaching a stable level of growth in order to continue to comfortably meet meeting debt service going forward. The rating also does not incorporate the additional leverage level which may be incurred for the contemplated Complete 540 project.

Exhibit 4

North Carolina Turnpike Authority Triangle Expressway

Factor	Subfactor	Score	Metric
1. Market Position	a) Asset Type	Baa	
	b) Operating History	Baa	
	c) Competition	Baa	
	d) Service Area Characteristics	A	
2. Performance Trends	a) Annual Traffic Transactions	Baa	
	b) Traffic Profile	Aaa	
	c) Five Year Traffic CAGR	A	
	d) Ability and Willingness to Increase Toll Rates	A	
3. Financial Metrics	a) Debt Service Coverage Ratio	Baa	1.27x
	b) Debt to Operating Revenue	Caa	12.68x
4. Capacity, Capital Plan and Leverage	a) Asset Condition/Capital Needs	Aa	
	b) Limitations to Growth/Operational Restrictions	A	
Notching Considerations		**Notch**	
	1 - Debt Service Reserve Fund level	0	
	2 - Open/Closed Flow of Funds	-0.5	
	3 - Days Cash on Hand	1	
	4 - Other Financial, Operating and Debt Factors	0	
Scorecard Indicated Rating:		**Baa1**	

Source: Moody's Investors Service

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