CREDIT OPINION
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NORTH CAROLINA TURNPIKE AUTHORITY (TRIANGLE EXPRESSWAY)

Update to credit analysis

Summary

Triangle Expressway's (senior revenue bonds, Baa2 stable) credit profile reflects the continued favorable performance of both traffic and revenue since the start of operations fourteen years ago, supported by the road's growth position. Triangle Expressway is an important congestion reliever in an area with strong population and economic growth. The credit profile considers the significant additional leverage incurred for the Complete 540 Phase 1 and Phase 2 projects, although financing needs are well defined and supported by completion guarantees from the North Carolina Department of Transportation (NCDOT).

Credit metrics on our calculated basis are expected to remain narrow going forward, with high debt ratios and low debt service coverage ratios (on our net revenue basis). To meet its escalating debt service profile, the road will require sustained mid- to high single-digit revenue growth post completion of both Phase 1 (opened to traffic on September 25, 2024) and Phase 2 (set to be completed in 2028), of the Complete 540 projects, and ramp-up for several years before steady state operations in 2033.

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 workforce.

» Operating and financial results have generally been better or near the forecast since opening of the existing asset in December 2012; traffic expected to increase materially upon ramp-up of expanded phases

» Pre-approved automatic toll rate adjustments on existing segments, with any changes subject to NCTA board's discretion

Credit challenges

» Back-loaded amortization profile with growing debt service through 2058 requires consistent traffic growth

» Toll revenue is highly leveraged and all-in debt service coverage has little safety margin, which could lead to use of reserves or state shortfall payments

» Operating expenses, and repayment of shortfall advances to NCDOT, are paid from project cash flow

» Senior debt service reserve required to equal 50% of the standard three-prong test

Rating outlook

The stable outlook reflects the expectation that traffic and revenue will continue to increase in line with Moody's forecast and will be sufficient to meet the system's escalating debt service.

Factors that could lead to an upgrade

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

» Scheduled rate increases that allow for the maintenance of 2.0x senior debt service coverage ratios (DSCRs) on a net revenue basis

» Complete 540 southeast extension leads 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

» Expansion project does not lead to forecasted level of revenues and transactions

Key indicators

Exhibit 1
Key indicators

	2020	2021	2022	2023	2024
Operating Revenues ($'000)	51,951	36,320	56,078	66,277	66,700
Total Transactions ('000)	49,530	49,069	61,137	69,171	76,870
Total Debt Service Coverage By Net Revenues (x) (bond ordinance)	1.6	1.49	1.5	1.69	1.37
Total Debt Service Coverage By Net Revenues (x)	1.01	1.07	1.13	1.21	0.91
Debt Outstanding ($'000)	1,494,220	1,529,818	1,524,309	1,513,344	1,861,459

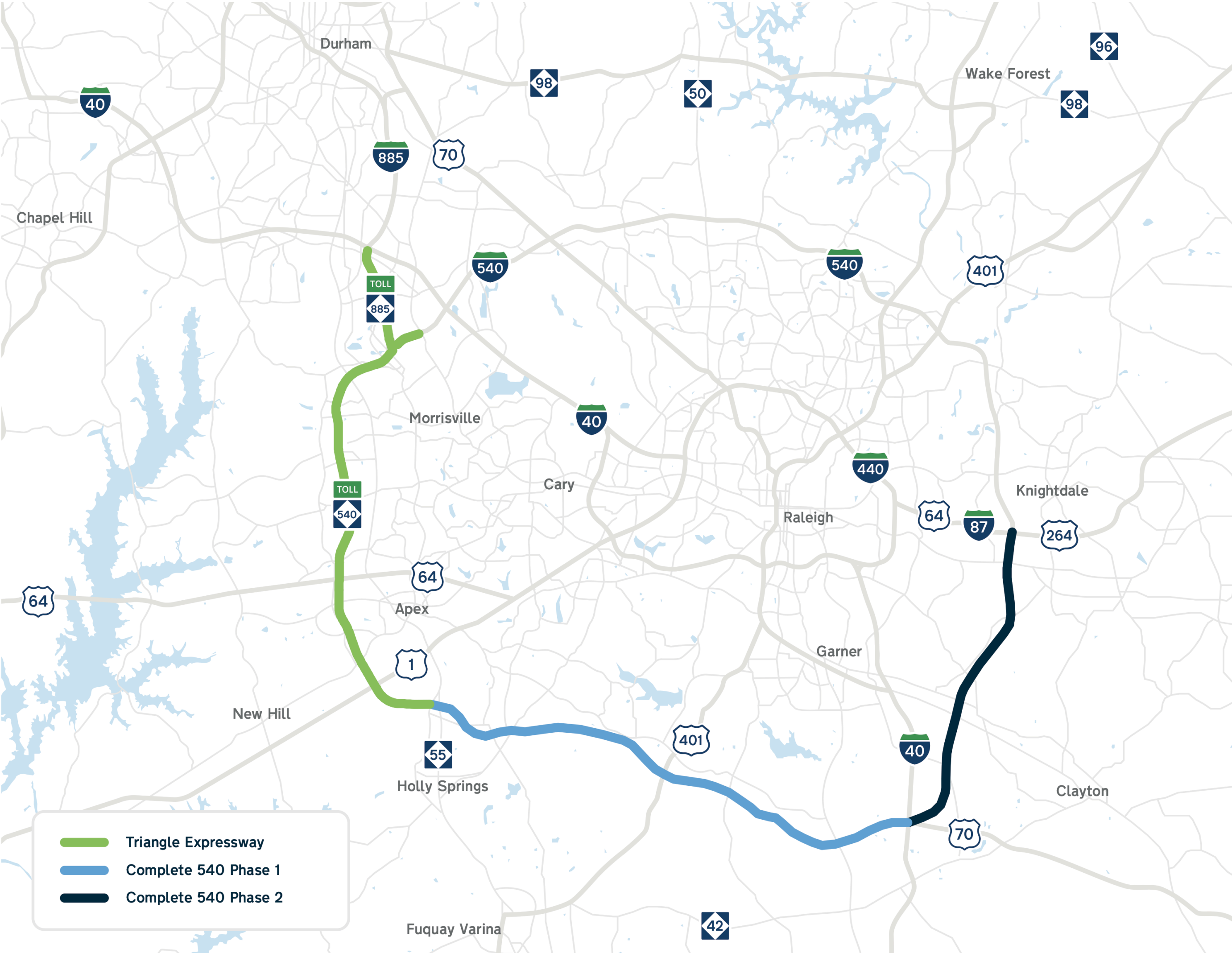
Source: NCTA, Moody's Ratings

Profile

The Triangle Expressway is a single asset 36.8 mile All-Electronic Toll (AET) 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 in the north to the NC Highway 55 Bypass near Holly Springs, NC, in the south. The road serves as a major alternative to the heavily used NC 55, and 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 employ alternative funding for key transportation projects statewide.

The Triangle Expressway opened in phases between 2011 and 2013, with the final phase opening to toll traffic on January 2, 2013. Construction of the Complete 540 Expansion Phase 1 began in 2020 and, opened to traffic on September 25, 2024, Phase 1 added another 17.8 miles southeast of the current expressway and further complete the 540 ring around Raleigh. The authority has also reached financial closing of Complete 540 Phase 2, the final phase of the Triangle Expressway system, which will consist of the remaining 10.2 miles from I-40 to I-87/YS 64/US 264.

Exhibit 2
Map of Triangle Expressway System



Source: NCTA

Detailed credit considerations

The Triangle Expressway is located in the greater Raleigh area, a region known by its presence of renowned universities and research centers, and which has had an average unemployment rate below state and national averages. Payrolls in Raleigh have accelerated since mid-2023 and are now more than double the national pace and rank fastest among all metro areas. Tech and manufacturing industries have been among the strongest performers. Raleigh's fast growing and economically strong service area will continue to support traffic demand at the expressway system.

The expressway serves mostly passenger travelers, which in fiscal year 2024 represented approximately 96% of traffic on the toll road and 92% of total toll revenues. Given the road's access to the Research Triangle Park, a large portion of its passengers commute to work. Also, since the road gives access to I-40, passenger traffic aiming at leisure destinations is very common, as it connects the greater Raleigh to shore points and other recreational areas in southwestern North Carolina.

Transactions and toll revenues had been significantly above traffic and revenue (T&R) studies since it opened for traffic in December 2012 until 2019. While the growth trend has been set back by COVID, performance remains close to the fiscal 2021 T&R report, that included impacts from the pandemic, which is notable considering the material shock experienced. In fiscal year 2024, total transactions had an annual increase of 11.1% and it was 5.0% above the T&R projections. Toll revenues increased by 16.9% in fiscal year 2024 and represented 87.7% of total actual revenues and actual revenues increased to $66.7 million in fiscal year 2024.

In January 2024, the T&R report was updated in the 2023 Bringdown Letter to support the financing for the Complete 540 Phase 2 project. The main change was revised assumptions for when Complete 540 Phase 1 and Phase 2 are expected to open. Phase 1 opened to traffic on September 25, 2024 and phase 2 is expected to open towards the end of 2028. As a result, the sum of projected transactions and revenues from fiscal 2024 through 2030 are 17% and 11% lower than the 2021 T&R study, respectively. After fiscal 2032, transaction and toll revenue growth are not affected by any additional project or related ramp-up. Annual transactions are expected to increase to $243.7 million in fiscal 2045 from $176.5 million in fiscal 2032, an average annual increase of about 2.5% per year.

The project has an adopted tolling policy with annual increases, which it has adhered to in every year of operation so far. Elasticity has also been immaterial with several consecutive years of traffic increases. On average, toll rates will increase at all tolling locations by 3% from 2025-2036 and 2% or less after 2036, based on the schedule provided by NCTA for both the existing road and Complete 540 Phase 1. For fiscal year 2024 The authority's Board of Directors passed a resolution to adjust bill by mail (BBM) rates in 2025 and beyond. BBM rates were increased by approximately 30% to create a 50% discount between ETC and BBM, and therefore incentivize the use of ETC.

Complete 540 Phase 1 and Phase 2

Complete 540, also known as the Southeast Extension, will link the towns of Apex, Cary, Clayton, Garner, Fuquay-Varina, Holly Springs, Knightdale and Raleigh. It will provide an alternative route for longer-distance trips, avoiding the more congested sections of I-40 serving local movements in the Raleigh area. The entire project, which has three segments and a total of approximately 29 miles of highway, is estimated to cost $2.2 billion and it has been implemented in phases.

Complete 540 Phase 1 consisted of two adjacent segments and extends the existing Triangle Expressway approximately 17.8 miles from N.C. 55 Bypass in Apex to I-40 in southeast Raleigh. The construction began in fiscal 2020 and the project was opened to public on September 25, 2024. There was a litigation related to the rescinded Transportation Corridor Official Map Act (Map Act) which delayed NCDOT's process to obtain right of ways to the project, but it was resolved and the associated costs were handled by the Department. The Map Act was enacted in 1987 which allowed the state to identify future corridors with the aim of limiting development of lands that would be needed for those transportation changes. However, the law was rescinded by lawmakers in 2016. In addition, unfavorable weather conditions, mostly rainy and wet weather, have also caused delays in the project construction schedule. Total costs of the Phase 1 expansion project are still being finalized, as some final checklist items are being completed. The remaining items won't materially affect operations of the facility. Despite the project reaching COD with a slightly delay, total costs are within budget and it is expected to remain this way until it's finalized. Since the opening of the Phase 1 extension project, the Triangle Expressway System traffic has exceeded projections, in part due to a higher than projected utilization of the Complete 540 Phase 1 extension.

The remaining portion of the project, Complete 540 Phase 2, began construction in mid-2024 and it is expected to reach COD by the end 2028. On October 5, 2022, the North Carolina Board of Transportation approved a resolution to advance funds for initial and early costs for Complete 540 – Phase 2. The resolution was approved as advanced funding and a one time full reimbursement occurred following Phase 2 Financial Close in January 2024. The remainder of the $340.4 million new Revenue Bonds, Series 2024 proceeds have been used to fund construction related activities. The authority estimates Phase 2 project to cost approximately $1.2 billion, which will be funded from the proceeds of Series 2024 Bonds, 2024 TIFIA Loan ($417 million) and NCDOT funds ($407.4 million).

Financial Operations and Positions

In fiscal year 2024, the expressway reported $66.7 million of total revenues, up from $66.3 million in fiscal year 2023, mainly driven by annual transaction growth of 11.1% coupled with toll rate increases. Fiscal year 2024 senior DSCR on a bond ordinance basis was 1.37x, down from 1.69x in 2023, mainly due to new debt raised in 2024 for the complete phase 2 project. The bond ordinance calculations are on a gross revenue pledge, while Moody's also calculates DSCR on a net revenue pledge. Moody's calculated net revenue senior DSCR was 0.91x in fiscal 2024 we expect that there will be a few years of low DSCR during the ramp up of complete phase 1 project.

The credit profile benefits meaningfully from the strong and clearly defined support from the State of North Carolina, which effectively backstops all operating, maintenance and renewal expenses. This allows toll revenue to be pledged and applied entirely for debt service, which increases the leverage that can be obtained for the asset. In addition to gross coverage, we also evaluate net revenue coverage given (1) the use of pledged toll revenues to pay operating expenses; (2) funds are applied monthly through the waterfall; and (3) shortfall payments accrue as subordinate repayment obligations. In practice, operating expenses, and any guarantee reimbursements, are paid by the road and are uses of its cash flow.

Going forward, the most recent traffic and revenue study for the expansion shows coverage metrics in the next three years to remain narrow primarily because the project's phase 2 project is under construction and phase 1 is ramping up. In fiscal 2025, senior DSCR on a bond ordinance basis is expected to approximate 1.58x, while Moody's net revenue senior DSCR is expected to be slightly below 1.0x before increasing to 1.43x in 2032, as the authority collects revenue from the Complete 540 Phase 1 & 2. The authority expects to draw funds from the project unrestricted general reserve fund to meet toll revenues shortfall.

Under various Moody's sensitivities, we project senior and total net revenue coverage ratios below 1.0x in certain years such as 2024 – mainly when 540 Phase I is under ramp up phase – which may require support from NCDOT's guarantee, however, to date the Authority has not needed to rely on the NCDOT guarantees. Positively, we expect any shortfalls will be very small relative to NCDOT's resources, and the rate covenant requires the road to set rates for at least 1.0x coverage of debt service and operating expenses, in which case it practically is unlikely to consistently operate below 1.0x on a net revenue coverage. The rate covenants per the debt documents are calculated on a gross pledge basis, and as a result, minimum rate covenants would only be reached in extreme downside scenario sensitivities. Failure by the state to pay a guarantee payment or perform any covenant, agreement or obligation is an event of default under the bond trust agreement and the TIFIA loan agreement.

NC Quick Pass transponder penetration continues to improve and it should improve further given the recent approved rate increase for BBM, this represents an opportunity to further optimize the financial structure. BBM represented roughly 36% of total toll revenues, and continued shift to ETC would likely reduce revenue leakage – currently 10% or more of gross revenue – and streamline administrative efforts.

LIQUIDITY

Triangle Expressway's liquidity position is currently very strong, evidenced by approximately 1,225 days cash on hand as of June 30, 2024. In the next 12-18 months, liquidity is expected to decline because the authority will use unrestricted cash to cover O&M expenses during ramp-up of Phase 1 and construction of Phase 2. However, liquidity of the toll road is expected to remain solid, with an average of 700 or more days cash on hand between 2025-2027. Liquidity may then moderate in terms of its relative level as O&M and R&R payments increase with the opening of the Complete 540 Phases 1 & 2. Liquidity is expected to improve again once the ramp-up period is over and the extension has been in operation for several years.

In the event of O&M and R&R shortfalls, the NCDOT would cover those payments, although the guarantee does not extend to the payment of debt service. This risk is managed by structuring the financing to an average total DSCR of nearly 3.0x through 2055, as well as by restricted debt service reserve funds for the senior bonds and TIFIA loan in addition to unrestricted liquidity held at the project.

Exhibit 3

Fund Balances as of June 30, 2024

Fund	Balance as of June 30, 2024 ('000)
Operations & Maintenance Expense Fund	3,615
Operating Reserve Fund	8,385
Renewal & Replacement Fund	17,310
Project Fund	197,940
Restricted General Reserve	1,384
Unrestricted General Reserve	70,472

Source: NCTA

Debt and Other Liabilities

DEBT STRUCTURE

The funding for Complete 540 Phase 1 originally consisted of $371 million in senior toll revenue bonds, a TIFIA Loan of approximately $500 million, along with $116 million of state appropriation revenue bonds, $297 million of GARVEE debt and a $74 million GARVEE State Match.

The authority also reached financial close on the Complete 540 Phase 2 on January 30, 2024. The funding for this project consists of $340.4 million in senior toll revenue bonds (Series 2024) and a 2024 TIFIA Loan of approximately $417 million. Senior toll revenue debt outstanding at the end of fiscal year 2024 was around $1.9 billion.

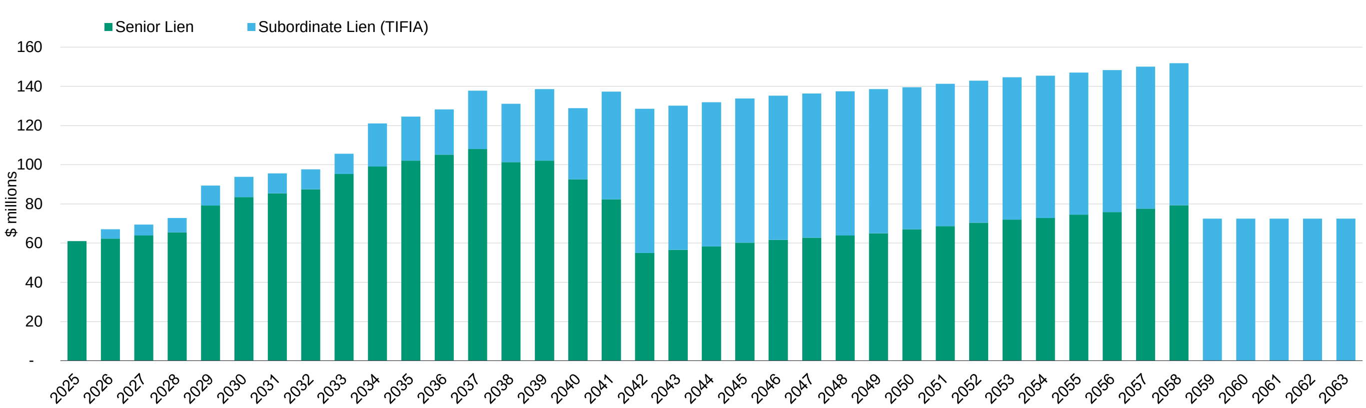
The state appropriation bonds are subject to appropriation of the funds from the state, and federal subsidies under the Build America program, and therefore are not included in Moody's calculation of total debt. Any residual appropriations or grants are eligible for debt service on the revenue bonds.

Exhibit 4
NCTA Triangle Expressway Debt Outstanding

Triangle Expressway Outstanding Debt (in thousands)	As of June 2024
Senior Lien Revenue Bonds, Series 2009B	$98,690
Senior Lien Revenue Refunding Bonds, Series 2017	$145,920
Senior Lien Revenue Refunding Bonds, Series 2018	$390,850
Senior Lien Revenue Bonds, Series 2019	$370,975
Triangle Expressway System Revenue Bond, TIFIA Series 2021	$512,851
Senior Lien Revenue Bonds, Series 2024A	$304,575
Senior Lien Revenue Bonds, Series 2024B (CAB)	$37,598
Total: Revenue	**$1,861,459**
Appropriation Revenue Refunding Bonds, Series 2018A	$150,125
Appropriation Revenue Refunding Bonds, Series 2018B	$121,236
Appropriation Revenue Bonds, Series 2019	$133,731
Total: Revenue + State	**$2,266,551**

Includes unamortized premiums or discounts
Source:NCTA

Exhibit 5
Triangle Expressway debt service profile



Source: NCTA

DEBT-RELATED DERIVATIVES

None.

PENSIONS AND OPEB

Pension liabilities are low. Employees of the authority are participants in the state's Teachers' and State Employees' Retirement System, which is a defined benefit pension plan administered by the North Carolina State Treasurer. Based on a discount rate of 6.5%, NCTA reported a net pension liability of $2.2 million for fiscal year 2024. Moody's adjusted net pension liability was $4.5 million for fiscal year 2024 and is based on a lower discount rate.

Legal Security

The lien on pledged revenues of the Triangle Expressway system securing the revenue 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.

There is a 1.30x senior lien rate covenant and a 1.10x covenant on total debt service requirements calculated on a gross revenue pledge basis. 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 1.40x of senior lien debt service and 1.30x 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 (A1 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.

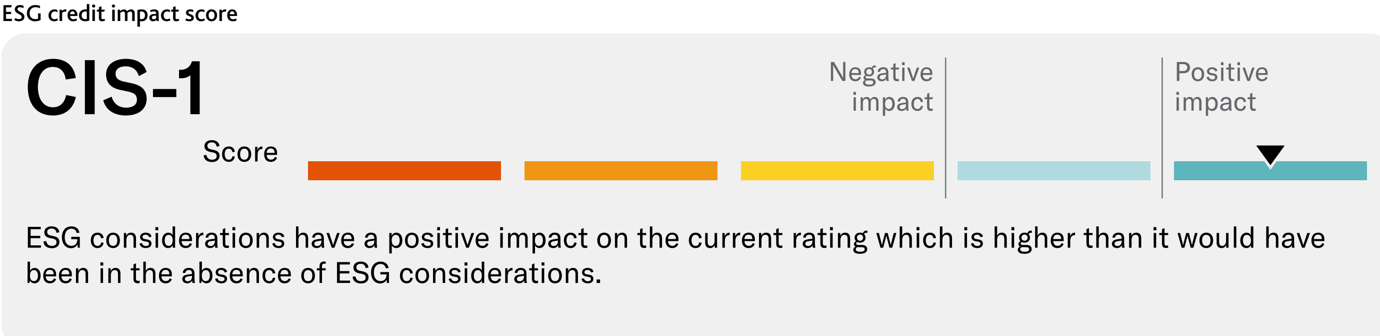
The NCTA benefits from NCDOT's guarantee to cover any shortfall in NCTA's O&M reserve fund and the R&R fund.

ESG considerations

No.Carolina Tpke Auth (Triangle Expressway)'s ESG credit impact score is CIS-1

Exhibit 6

ESG credit impact score

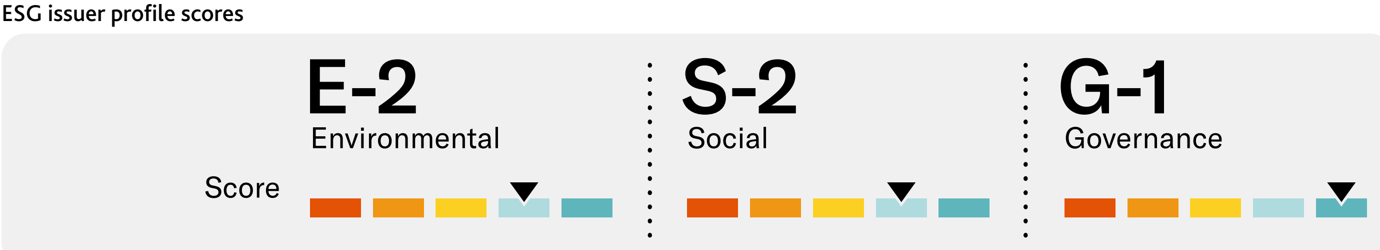


Source: Moody's Ratings

CIS-1. The score reflects the positive governance considerations and neutral-to-low exposure to environmental and social risks.

Exhibit 7

ESG issuer profile scores



Source: Moody's Ratings

Environmental

E-2. Credit exposure to environmental relates to water management, waste and pollution and natural capital risks as the current and future greenfield expansion projects are expected to continue to be well managed by experienced contractors that can effectively manage these construction risks. Exposure to physical risks is also neutral-to-low as severe rainstorms and infrequent hurricanes only modestly reduce traffic when they occur and have not caused any material asset damage to date. The increasing use of electric or hybrid vehicles still require the use of the roadways, limiting exposure to carbon transition risks impacts on traffic and revenue. While roadway materials are carbon intensive (i.e., concrete and asphalt), wide use of sustainable alternatives have yet to become widely and affordably available and there has yet to be a rise in political or social pressure to decarbonize construction materials to date.

Social

S-2. Credit exposure to social risks reflects the positive long-term demographic and social trends of the region with strong forecast long-term population and employment growth should lead to more traffic over time is balanced with the need for more capital investment to expand the toll road to support this regional growth. Neutral-to-low credit exposure to customer relations reflects the successful annual implementation of the approved long-term toll rate schedule based on the third-party traffic and revenue study. Forecast toll rate increases are manageable as they average about 3% annually through 2036 and about 2% or less annually thereafter. Neutral-to-low credit exposure to health and safety, human capital and responsible production risks is due to the well-managed capital investment program to date.

Governance

G-1. Governance considerations reflect a history of sound financial strategy and strong risk management benefiting from multiple forms of strong fiscal support from the North Carolina Department of Transportation (NCDOT), an agency of the Aaa-rated State of North Carolina. This strong support from the state includes $24 million in annual state appropriation revenue support and a contingent guarantee by the NCDOT to pay for any shortfalls in the operations and maintenance and renewal and replacement reserves. NCTA has also received funds from the NCDOT and from the State Highway Trust Fund to fund part of its capital investment plan, yet NCTA has not relied on the NCDOT's contingent reserve support to date. Moderately negative exposure to board structure risks is due to the appointment of the majority of NCTA's board members by the Governor, though mostly credit supportive actions have been taken to date. The Triangle Expressway is managed by the NCTA. 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 credit has also moderately negative exposure to compliance and reporting risks, reflecting the limited financial disclosure on each of NCTA's projects, including Triangle Expressway.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moodys.com. In order to view the latest scores, please click here to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

Rating methodology and scorecard factors

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 Publicly Managed Toll Roads and Parking Facilities methodology for more information about the limitations inherent to grid.

The Baa2 rating assigned differs from the scorecard outcome of Ba1 as the rating recognizes the strength of the support provided by the state and the NCDOT in the form of construction completion on the extension project, as well as covering O&M and R&R shortfalls, allowing the system to achieve ramp-up and stable growth, in the event of negative deviations from the traffic and revenue forecast.

Exhibit 8

Mapping Triangle Expressway to Publicly Managed Toll Roads and Parking Facilities methodology

Factor	Subfactor	Score	Metric
1. Market Position	a) Asset Type	Baa	
	b) Competitive Position and Environment	Baa	
	c) Economic Strength and Diversity of Service Area	A	
2. Performance Trends	a) Annual Revenue ($ millions)	Baa	66.7
	b) Operating Track Record and Revenue Stability	A	
	c) Ability and Willingness to Increase Toll Rates	A	
3. Financial Metrics	a) Debt Service Coverage Ratio	Caa	0.9x
	b) (Debt + ANPL) to Operating Revenue	Ca	27.97x
Notching Considerations		Notch	
	1 - Debt Service Reserve Fund level	-0.5	
	2 - Open/Closed Flow of Funds	-0.5	
	3 - Days Cash on Hand	1.0	
	4 - Asset Ownership and Financing Structure	-1.0	
	5 - Leverage Outlook	0.0	
Scorecard Indicated Outcome:		Ba1	

Source: Moody's Ratings

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