MOODY'S
INVESTORS SERVICE

CREDIT OPINION
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North Texas Tollway Authority, TX

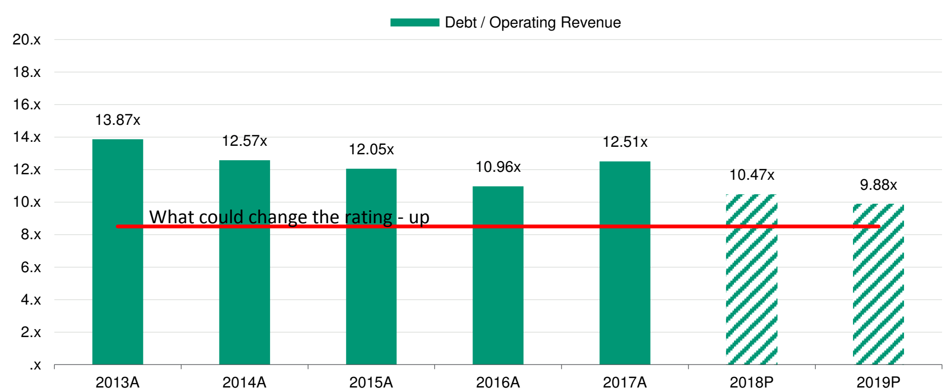
Update to credit analysis

Summary

North Texas Tollway Authority's (NTTA, first lien A1, second lien A2, stable) benefits from a growing roadway network that provides essential connections in one of the fastest growing US service areas. Increased revenue generation will come from continued traffic growth and automatic biennial toll increases. Traffic growth will be driven by capacity improvements on existing facilities, as well as induced development along NTTA's corridors in Dallas, Tarrant, Denton and Collin Counties. Debt service coverage ratios (DSCR) of all obligations by net revenue will remain between 1.35x and 1.45x through 2020 under NTTAs traffic consultant's projections. NTTA will generate sufficient revenue to fund its five-year growth needs without additional debt, though liquidity will fall from the current high of 931 days to around one year. Leverage is elevated with the addition of the former special project system in 2017, but will fall with scheduled amortization and revenue growth.

Exhibit 1

Bond amortization and rising toll revenues will drive leverage lower.



Source: Moody's Investors Service

Credit strengths

- Population and employment growth is among the strongest in the nation and continues to generate traffic and revenue growth
- Traffic grew 2.9% in fiscal 2017, while toll revenue increased 7.1% due to a partial year benefit of the biennial 5.5% toll rate increase that occurred July 1, 2017
- Most facilities were completed within the last 20 years and assets are in good condition. Construction risk for system expansions is minimal and should not impact traffic significantly for the projects that have been announced
- Strong tolling policy establishes a set 2.75% annual rate increase implemented every two years
- Annual engineering report states that system is in good condition with maintenance fully covered by annual deposits to Operating and Maintenance (O&M) and Reserve Maintenance funds (RMF)

Credit challenges

- Annual debt service requirements escalate through 2024, however peak debt service was reduced by the 2017 bond issue
- Authority's collection rate (40% in fiscal 2017) on video toll transactions remains well below previous targets (49% target by fiscal 2017) and total leakage is among the highest in the rated portfolio
- Expanding service area could pressure NTTA to assume additional capital improvements, though the authority has opted out of several TxDOT projects and would likely initially fund projects only through a separate stand-alone system
- The bond indenture flow of funds is open and allows for transfers up to 10% of surplus revenue to support non-system projects after all operating and debt service obligations of the authority have been satisfied
- Second tier bonds have half the standard 12-month DSRF and subordinate lien bonds lack a DSRF

Rating outlook

The stable outlook is based on our expectation that sustained economic growth in the service area will support revenue projections and keep DSCR (after deposits to the maintenance fund) on first and second tier bonds within the range of 1.35x and 1.45x through 2020. This corresponds to coverage as defined by the ordinance of 1.4x to 1.5x. The stable outlook also reflects our expectation that the authority will be able to manage capital needs without issuing new debt or drawing liquidity balances below 365 days cash on hand.

Factors that could lead to an upgrade

- Sustained and projected DSCR of first and second tier bonds above 2.0x
- Leverage, as measured by debt to operating revenue, below the 8.5x

Factors that could lead to a downgrade

- Additional debt issuances or revenue declines that lead to sustained DSCR of first and second tier bonds below 1.3x
- Lower than expected video toll enforcement and collections
- Failure to implement planned toll increases necessary to produce projected debt service coverage levels

Key indicators

Exhibit 2

NORTH TEXAS TOLLWAY AUTHORITY, TX					
	2013	2014	2015	2016	2017
Total Transactions Annual Growth (%)	4.3	5.5	5.1	3.9	2.9
Debt Outstanding ($'000)	7,588,629	7,648,188	7,840,320	7,767,128	9,533,055
Debt to Operating Revenues (x)	13.9	12.6	12.1	11.0	12.5
Days Cash on Hand ('000)	910	684	677	812	931
Senior Lien Debt Service Coverage By Net Revenues (x)	1.48	1.64	1.64	1.75	1.73
Total Debt Service Coverage By Net Revenues (x)	1.13	1.23	1.26	1.36	1.33

FY Ended June 30
Source: Moody's Investors Service

Profile

NTTA manages a well-established multi-asset tollway system in the Dallas-Fort Worth MSA. Assets include two bridges, one tunnel and five highways, with an approximate length of approximately 151 center line and 980 lane miles. Traffic is predominantly two axle passenger cars with only 2.8% multi-axle vehicles.

Detailed credit considerations

Revenue Generating Base - NTTA's service area population and economy continues at a well above average pace, leading to increased demand for toll roads

NTTA is poised to see continued strong revenue growth as the service area continues to grow, especially in the northern and western areas where NTTA's newer facilities are located. The NTTA's primary legacy facilities, the Dallas North Tollway (DNT), President George Bush Tollway (PGBT), and Sam Rayburn Tollway (SRT), serve the fastest growing areas of the Dallas-Fort Worth "metroplex" and will remain at least 75% of total revenue throughout the traffic consultant's forecast. Frisco, the second fastest growing city in the US according the census bureau, provides one of the primary sources of employment and entertainment facility growth in the region. Population growth in the area has been explosive, experiencing a 247% increase in the 10 years leading up to 2010. Since 2010, the population has continued to grow an additional 50.6%. The labor market is tight with the city's March 2018 unemployment rate of 3.5%, below the state's and the nation's 4.1%. Income levels are favorable with the median family income equal to 192.6% of the nation. JP Morgan Chase & Co. (6,000 employees), Liberty Mutual (5,000 employees) and Toyota North America (4,000 employees) have recently moved substantial operations to developments near the intersection of the DNT and SRT. Additionally, the Dallas Cowboys have created an entertainment district on the DNT just north of the SRT adjacent to Major League Soccer and minor league baseball facilities. Finally, the University of North Texas System plans to open a campus within the city, which will contribute to the economic vitality. The DNT, which connects to downtown Dallas, will also capture modest growth from these new developments as many new arrivals to the area may elect to live in the more urbanized, and densifying, areas in Dallas. However, the facility is functionally constrained from expanding in its lower reaches within the city of Dallas. McKinney TX (3.98% population growth in 2017) is third fastest growing city in the US according to the census bureau and is served by the SRT.

Moody's Analytics expects the Dallas-Plano- Irving area, which includes the three primary NTTA facilities, to benefit from strong growth in employment and hourly earnings, both growing at twice the national rate over the past year. A concentration of corporate headquarters, technology businesses and financial services have contributed to the above average employment growth and supported population growth. Commercial development has slowed after construction of campuses for Toyota, Liberty Mutual, and State Farm, however those firms continue to ramp up staffing levels, adding to employment and traffic in the region. Recent above-average increases in housing costs pose risk to in-migration as the region loses some of its historic cost advantages, but new developments lessen that pressure. Moody's Analytics expects the Dallas-Plano-Irving area will progress at an above-average pace in the coming year, with professional services, housing and construction leading the way. In addition, there will be an increase in net migration, total employment, and population, leading to greater traffic and revenue for managed lanes.

With the addition of the Chisholm Trail Parkway, there is increased access to new businesses and for students to access the Crowley Independent School District. The Fort Worth-Arlington metro area is growing at an above average pace, though not as fast as Dallas. Manufacturing should begin to accelerate as the large increase in defense spending takes effect. For example, there was recently a joint venture between Bell Helicopter and Boeing to build 58 tilt-rotor military aircraft. Furthermore, the Defense Department has placed orders with Lockheed for 80 additional F-35 aircraft, leading to an increase in hiring to meet production. Also fostering growth is the increase in homebuilding. Housing prices are rising at an above-average pace, faster than in Dallas for once, sending a clear signal to developers. As a result, new permits for single-family homes and multifamily units are increasing, and the total is now just shy of the 2006 peak.

Operational and Financial Performance - Strong revenue growth has mitigated the risk of rising debt service requirements, but DSCR should remain steady in the near term

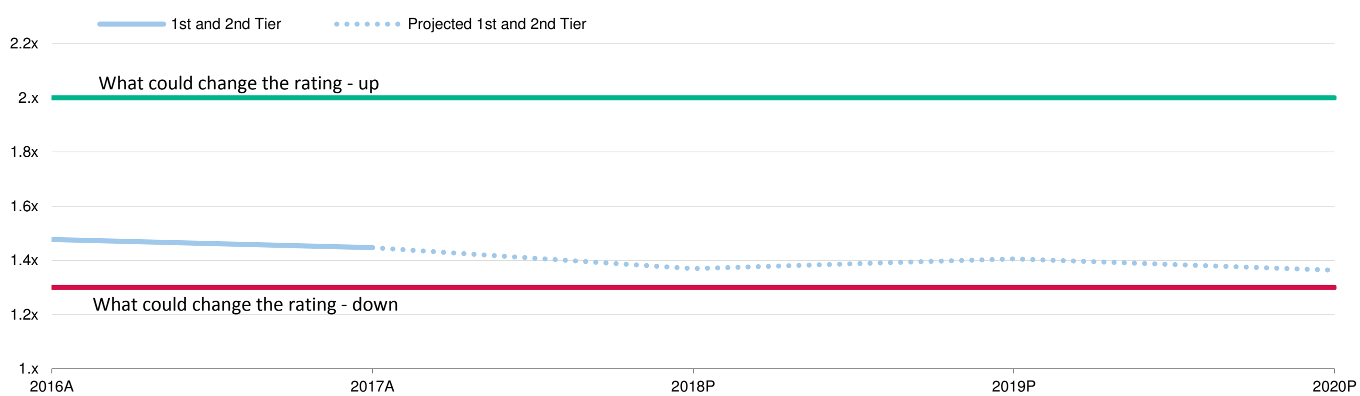
We expect NTTA's revenues to grow at similar rates as the combined operating expense and annual debt service requirement growth to produce stable debt service coverage ratios over the next three years. NTTA's baseline forecast is for total revenue to increase generally by 5% per year after fiscal 2018. The revenue forecast is based on approximately 2.0% annual growth over the next five years, which we think is reasonable given the favorable economic conditions. The forecast is exposed to potential slower growth expected at the end of the current economic cycle within the forecast. Reported operating expenses, which include payments from the RMF fund and some portions of expenses from the capital improvement fund increased to 22.7% to $211.2 million in fiscal 2017 from $172.2 million in fiscal 2016. The substantial increase was largely driven by the combination of the two systems.

NTTA is a cashless tolling system and derives approximately 81% of revenues through electronic toll collection (ETC). NTTA continues to expand "interoperability" with other regional systems, including all other operators in Texas, Oklahoma, and Kansas. NTTA collects the remainder of revenues through AVI and ZipCash tolling, which are both post-mailed billing options.

DSCR of first and second tier debt service on a net revenue basis (which uses the total operating expenses as defined in the audited financial statements) declined slightly to 1.45x in fiscal 2017 from 1.48x in fiscal 2016. On a bond ordinance basis, which excludes operating expenses paid from the RMF or other capital fund expenditures, DSCR increased to 1.62x in 2017 from 1.59x in 2016. Based on NTTA's current revenue projections, which are based on conservative assumptions, DSCR by net revenue will range from 1.35x to 1.45x over the next five years; however we view the latter years to have greater uncertainty. DSCR on a bond ordinance basis will range between 1.45x and 1.55x.

Exhibit 3

DSCR by net revenue will remain steady over the next two years if NTTA's revenue forecast is met



Source: Moody's Investors Service

LIQUIDITY

Liquidity will remain adequate as NTTA draws down on strong cash balances. NTTA reported 931 days cash on hand (DCOH) at the end of fiscal 2017, representing an increase from 812 DCOH in fiscal 2016. We expect that liquidity will decrease to approximately 365 days cash on hand as NTTA funds its capital needs from existing cash balances and from surplus cash generated annually.

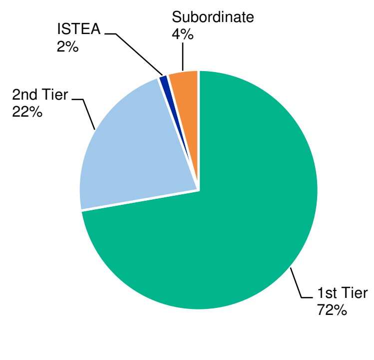
Debt and Other Liabilities

DEBT STRUCTURE

NTTA's debt structure has been simplified by recent and current transactions that have resulted in higher proportion of fixed rate debt and lower future annual debt service levels. At the end of fiscal 2017, NTTA had $7.24 billion of first tier debt, $1.76 billion of second tier debt, $125 million of unrated ISTEA loan, and $400 million of subordinate debt. The Series 2018 bonds will refund a significant portion of outstanding variable rate putable debt. Variable or putable debt will represent only 3% of the debt structure after the Series 2018 transactions. For the remaining putable debt, a failed conversion and remarketing does not constitute an event of default, and instead results in a stepped up coupon rate. There is no liquidity facility to cover such an event. We see the remarketing risk as manageable given the issuer's access to the market and the ability to afford the higher interest rate on these series if necessary.

Exhibit 4

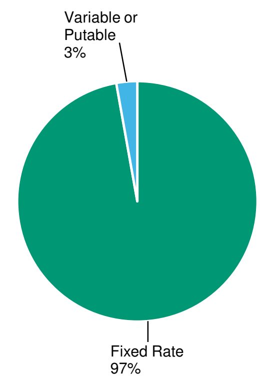
First tier debt represents the largest class of debt



Source: North Texas Tollway Authority

Exhibit 5

Exposure to puttable or variable rate debt is modest

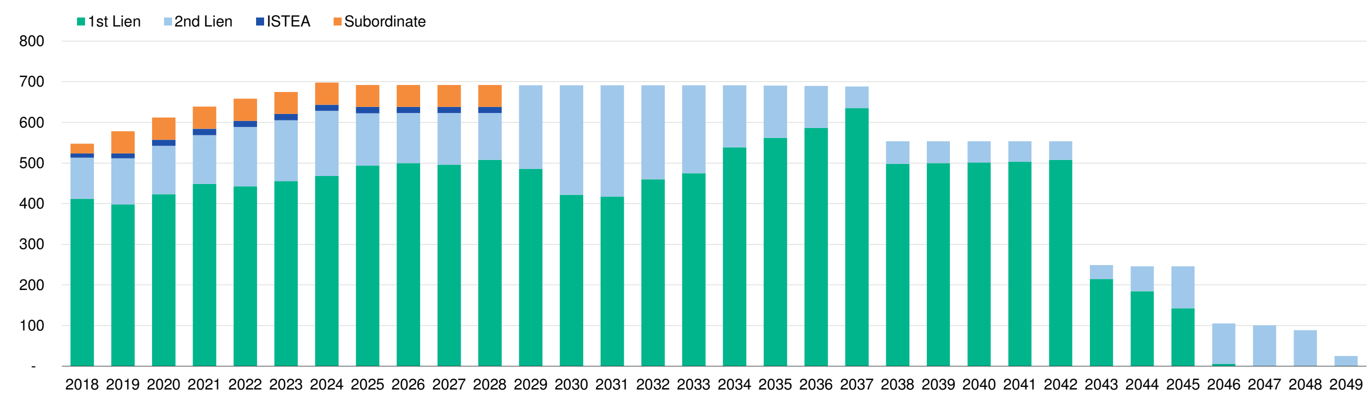


Source: North Texas Tollway Authority

Annual debt service requirements will escalate through 2024, when requirements level off. Given no need for additional debt in the current capital plan and expected growth in revenue, the debt profile provides flexibility to address growth or maintenance capital needs after the next five to seven years. Absent new debt, NTTA will see greater DSCR and lower leverage and therefore a stronger credit profile after 2024, though revenue performance above NTTA's current projections would strengthen the credit earlier.

Exhibit 6

Debt service requirements will flatten after 2024



Source: North Texas Tollway Authority

NTTA's current fiscal 2018-2022 capital plan includes $1.1 billion of project costs that will be funded from net cash flow. The capital plan includes an additional transfer of $25 million in fiscal 2018 bringing the reserve to a total of $75.0 million. The largest projects in the plan include the addition of one lane in each direction on the SRT, PGBT, and northern portions of the DNT. NTTA expects the construction projects on the PGBT and the SRT to have minimal impact to traffic. Similarly, NTTA expects that remaining construction work on the DNT will have lesser impacts on traffic than that experienced over the last year.

DEBT-RELATED DERIVATIVES

The NTTA has two interest rate swaps outstanding with Citibank and JP Morgan Chase, however these swaps will be terminated with proceeds from the Series 2018 bonds. The combined notional amount of the swaps is $178.2 million and the mark-to market as of June 30, 2018 was negative $14.0 million. Under the swap agreement with JP Morgan Chase NTTA could be obligated to post collateral if the rating on either FGIC and/or the authority's First Tier Bonds is below A3 by either of the two agencies rating the bonds.

PENSIONS AND OPEB

NTTA participates in the Texas County and District Retirement System (TCDRS), a hybrid benefit pension plan. NTTA reported a net pension asset of $1 million in fiscal 2017. On our adjusted net pension liability (ANLP) basis, NTTA had a $172 million liability in fiscal 2017. We view this liability to be manageable in relation to NTTA's overall debt load and a minor negative pressure on the credit.

Management and Governance

The NTTA has a nine-member board of directors - two members from each of four counties served by the authority and one appointed by the Governor of Texas from a county adjacent to the authority's service area. Eight of the nine members must vote affirmatively to add on another project to the system, or to proceed with a stand-alone/off system project.

Other considerations:mapping to the grid

The assigned rating of A1 on the first tier bonds is one notch below the grid indicated rating of Aa3. The current grid, based on fiscal 2016 values, reflects one positive notch for liquidity. The assigned A1 rating acknowledges that liquidity will fall below current levels as NTTA funds its capital plan.

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

Exhibit 7

Government Owned Toll Roads Methodology Scorecard

North Texas Tollway Authority

Factor	Subfactor	Score	Metric
1. Market Position	a) Asset Type	Aa	
	b) Operating History	Aa	
	c) Competition	Aa	
	d) Service Area Characteristics	Aaa	
2. Performance Trends	a) Annual Traffic Transactions	Aaa	723M
	b) Traffic Profile	Aaa	
	c) Five Year Traffic CAGR	Aaa	4.3%
	d) Ability and Willingness to Increase Toll Rates	Aa	
3. Financial Metrics	a) Debt Service Coverage Ratio	Baa	1.45x 1st & 2nd Tier, 1.33x Total
	b) Debt to Operating Revenue	Caa	12.51x
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	+1.0	931
	4 - Other Financial, Operating and Debt Factors	0	
Scorecard Indicated Rating:		**Aa3**	

Source: Moody's Investors Service

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