



**Credit
Rating
Agency**

A NRSRO Rating*

**Central Texas Regional Mobility Authority
Senior Lien Revenue Bonds
Subordinate Lien Revenue Bonds**

**HR A- (G)
HR BBB+ (G)**

Infrastructure
September 24, 2019

Ratings

Senior Lien Revenue Bonds	HR A- (G)
Subordinate Lien Revenue Bonds	HR BBB+ (G)
Outlook	Stable

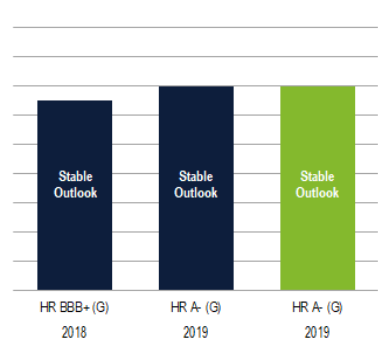
Contacts

Pablo Gracia
Associate
pablo.gracia@hrratings.com

Roberto Soto
Associate Director
roberto.soto@hrratings.com

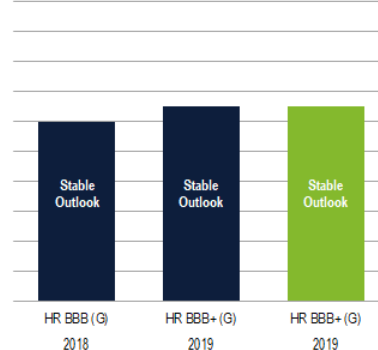
Roberto Ballinez
Senior Executive Director Public Finance / Infrastructure
roberto.ballinez@hrratings.com

Senior Bonds' Credit Rating Evolution



Source: HR Ratings.

Subordinate Bonds' Credit Rating Evolution



Fuente: HR Ratings.

HR Ratings ratified the rating of HR A- (G) to the Senior Lien Revenue Bonds and HR BBB+ (G) to the Subordinate Lien Revenue Bonds. The Ratings Outlook is Stable.

The ratification of the ratings for the Senior and Subordinate Bonds is due to the level of stress that the source of payment can withstand, equivalent to an Annualized Stress Rate (ASR)¹ of 2.59% for the Senior Bonds (vs. 2.54% in the last review) and 2.15% for the Subordinate Bonds (vs. 1.98% in the last review). The above considering the favorable performance of traffic and revenue of the System's existing toll roads and the incorporation of 183 South and 290E Phase III, which will provide additional revenues to service the debt.²

The ratings also consider the possibility that the Central Texas Regional Mobility Authority (the CTRMA and/or the Authority) could issue additional debt in the future, as well as the inherent construction risk of ongoing and future projects (such as 183 South and 290E Phase III) that would be incorporated into the System. Furthermore, HR Ratings regards as a potential risk the fact that the provisions for the Renewal and Replacement Fund are made after servicing the Senior and Subordinated debt. However, the CTRMA has the capacity to debt finance any extraordinary renewal and replacement projects.

The main assumptions and results are:

Historical Performance vs. Forecasting

- **2018 Average Annual Daily Transactions (AADT) and Real Average Annual Daily Revenues (AADR).** The last year, AADT grew 5.5% (in line with the growth expected in the base scenario of the last review of 5.3%), driven by a growth rate in 183A, 290E and 71E of 5.9%, 4.2% and 6.8%, respectively. On the other hand, in 2018 Real AADR grew 8.7%, lower than the expected in the base scenario of the last review of 12.8% because of some timing differences in processing the toll revenues. Real AADR growth was 2.1% for 183A, 18.8% for 290E and 34.8% for 71E.
- **The AADT and Real AADR Compound Annual Growth Rate (CAGR) from 2008 to 2018 was 16.2%.** For 183A, the CAGR₀₈₋₁₈ of AADT and Real AADR was 10.4% and 11.1%, respectively. In the case of 290E, the CAGR₁₃₋₁₈ of AADT and Real AADR was 32.6% and 44.0%, respectively. Without considering the addition of 71E to the System, the CAGR₀₈₋₁₈ of AADT and Real AADR was 14.9% and 15.0%, respectively.
- **Vehicle mix.** In average, between 2014 and 2018, 2-axle vehicles represented 97.1% of 183A total transactions and 93.7% of 290E total transactions. In 2018, 2-axle vehicles represented 94.4% of 71E total transactions.
- **Electronic Toll Collection (ETC) and Pay by Mail (PbM) transactions.** In 2018, ETC represented 58.3%, 51.8% and 54.3% of transactions in 183A, 290E and 71E, respectively. Also, the last year, with information provided by the CTRMA, approximately 49.0% of the PbM transactions were collected.

¹ The ASR is the compounded average annual reduction in revenue from the base case to the stress case. It is essentially the total cumulative decline in revenue or in transactions of the stress case from the base case converted into an average annual rate depending upon the number of years in the term of the obligation. Please see glossary for an algebraic description of the formula.

² Our stress scenario is not to be understood as an example of what could happen under a set of adverse circumstances. Rather, it should be understood as the most adverse set of circumstances that could be tolerated while at the same time the debt servicing obligations of the bonds are duly paid. Thus, the more adverse the set of circumstances of the stress scenario, the greater is the credit quality of the bonds.



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Future Assumptions

- **Expected behavior for 2019 of AADT and Real AADR in the base scenario.** In 2019, HR Ratings expects that AADT and Real AADR will grow 14.5% and 18.8%, respectively, considering the start of operations of the northern segment of 183 South in July and that Average Daily Traffic (ADT) and Real Average Daily Revenue (ADR) for the first seven months grew 5.8% and 2.6%, driven by an increase in ADT of the 71E, 183A and 290E of 5.2%, 6.2% and 5.2%, respectively.
- **CAGR for Senior and Subordinate Bonds in the base scenario.** In the base scenario, HR Ratings expects a CAGR₁₈₋₄₇ (Senior Bonds) of AADT of 3.9% and a CAGR₁₈₋₅₃ (Subordinate Bonds) of AADT of 3.4%. The CAGR₁₈₋₄₇ and the CAGR₁₈₋₅₃ of Real AADR will be 4.4% and 3.8%, respectively.
- **CAGR for Senior and Subordinate Bonds in the stress scenarios.** For the Senior Bonds, the maximum reduction in transactions that could be applied before the senior debt obligations are compromised will result in a CAGR₁₈₋₄₇ of AADT of -1.4% and a CAGR₁₈₋₄₇ of Real AADR of -0.9%. For the Subordinate Bonds, the CAGR₁₈₋₅₃ of AADT and Real AADR will be -0.9% and -0.5%, respectively.
- **Expected behavior of Senior and Subordinate Bonds' debt service under the base scenario.** Revenues available to cover the senior and subordinate debt obligations will always be enough, so there will be no need to use the General Fund or the Senior or Subordinate Lien DSRF. The minimum and average Senior Debt Service Coverage Ratios (DSCRs) would be 2.25x and 13.69x, respectively, and the minimum and average Subordinate DSCRs would be 1.68x and 24.89x, respectively.
- **Senior and Subordinate DSCRs in the stress scenario.** For the Senior Bonds, the minimum and average DSCRs would be 0.61x and 2.39x, respectively. For the Subordinated Bonds, the minimum and average DSCRs would be 0.71x and 3.67x, respectively.

Additional Factors Considered

- **Construction Risk.** 183 South, which opened partly (just the northern segment) on July 31, 2019, is expected to open fully on August 2020 and 290E Phase III, which will consist of two tolled Direct Connectors (DC) operated by the CTRMA and one free DC operated by the TxDOT, is expected to start full operations on July 2021.
- **Additional Bonds Test.** The Authority reserves the right to issue additional debt, if the expected debt service coverage ratio is at least 1.40x for Senior Bonds, 1.20x for Senior and Junior Lien Obligations, 1.20x for Senior, Junior Lien Obligations and Subordinated Bonds and 1.10x for all Obligations.

Factors that could upgrade the rating

- **Performance of 183 South and 290E Phase III within or above our expectations.** This will generate more cash flow for the debt service of senior and subordinate bonds.

Factors that could downgrade the rating

- **Transactions collected by PbM equal or under 30.0% in all toll roads.** This will imply less revenues for debt service and, with it, the stress applied to transactions will be less, which will diminish the ASR.



Results: Observed vs. Forecasted

Table 1. Observed vs Forecasted
Annualized Stress Rate
2019 Review
2018 Review
Senior ASR
Subordinate ASR
Financial Information
Observed
Projected
Outstanding Senior Balance
Outstanding Subordinate Balance
Operational Information
Observed^2
Projected^2
AADT
Real AADR^1

Source: HR Ratings based on internal projections.

(1) Information presented in thousand dollars at January 2019 prices. (2) For the period from August 2018 to July 2019.

Regarding the Real AADR, the difference between the observed and the projected is due to some timing differences in collecting PbM transactions because of the change in the company in charge of billing them, which cause a delay in the issuance of PbM bills of November and December 2018.

Relevant Events

Pay by Mail Program

Regarding the PbM program, it officially transitioned from MSB to Cofiroute USA in November 2018. MSB billed all transactions occurring before November 18, 2018 while Cofiroute assumed billing for the remainder of the 2018 transactions. Approximately 49.0% of the PbM bills issued by MSB in 2018 were collected. Due to technical difficulties and the holidays, the first bills under the Cofiroute program were not issued until the beginning of January 2019.

Interim completion of 183 South

It opened partly (just the northern segment) on July 31, 2019, and the remainder (ultimate build) is expected to open on August 2020. It is worth to mention that the north end did not charged rates to drivers with an electronic tag until August 31, 2019.

Additional debt

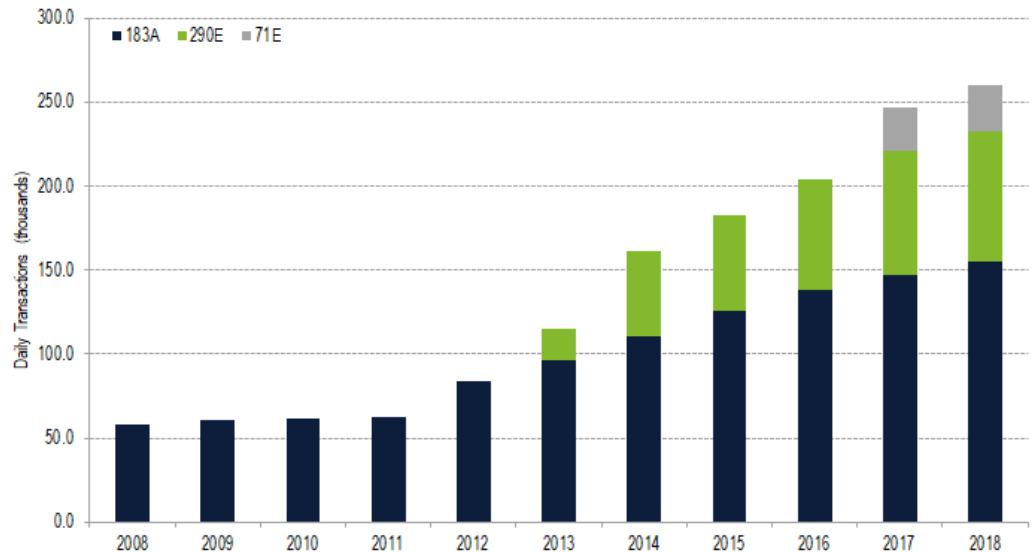
Regarding the issue of additional debt, the Subordinate Lien Revenue Bond, Taxable Series 2019 (the 2019 TIFIA Loan) was closed in March 2019 for a total amount of US\$46.9 million (m) with the United States Department of Transportation (USDOT) as the lender and the CTRMA as the borrower. The 2019 TIFIA Loan will accrue interest semiannually at a fixed rate of 2.96% and will pay principal semiannually starting in July 2029 and ending in January 2054. Also, the 2019 TIFIA Loan will be used to pay or redeem partially or fully the Series 2018 Subordinated Lien BANs. Disbursements should be made before one year after the substantial completion date of 290E Phase III.

Transactions and Revenue

The System is composed of five projects, three are already open to traffic, one (183 South) is still under construction (just the north end is operating) and the last one (183 North³) is under development with construction expected to begin in early 2021. The ones that are already operating are 183A⁴, 290E⁵ and 71E. Regarding 290E toll road, Phase III started all construction activities on March 2019, and it is expected to start full operations on July 2021. Phase III will consist of two tolled Direct Connectors (DC), southbound SH 130 to westbound 290E and northbound SH 130 to westbound 290E, owned and operated by the CTRMA, and one free DC, eastbound 290E to southbound SH 130, owned and operated by the Texas Department of Transportation (TxDOT). On the other hand, 183 South opened partly (just the northern segment) on July 31, 2019 and charged rates until August 31, 2019. The remainder (ultimate build) is expected to open on August 2020.

Figure 1 shows the Average Annual Daily Transactions (AADT) for the 183A, 290E and 71E. As can be seen, from 2008 to 2012, just the 183A was opened to traffic (the second phase opened on April 2012), achieving a CAGR₀₈₋₁₂ of 9.8%. Then, on January 2013 and May 2014 the first and second phases of the 290E opened to traffic, respectively, increasing the number of AADT in the System from 2012 to 2014 by 92.2%. Finally, on February 2017 the 71E was included in the System with a participation in the AADT of 10.4%, so 183A and 290E were left with 59.5% and 30.1%, respectively. As can be seen in Figure 1, in 2018 the participation of each road in AADT did not change too much because of the growth rates of each road. Considering that, the CAGR₀₈₋₁₈ of the AADT in the System was 16.2%.

Figure 1. Average Annual Daily Transactions (AADT)



Source: HR Ratings with information from the Central Texas Regional Mobility Authority.

³ This road was added to the System in the General Meeting of the Board of Directors dated as of September 11th, 2019.

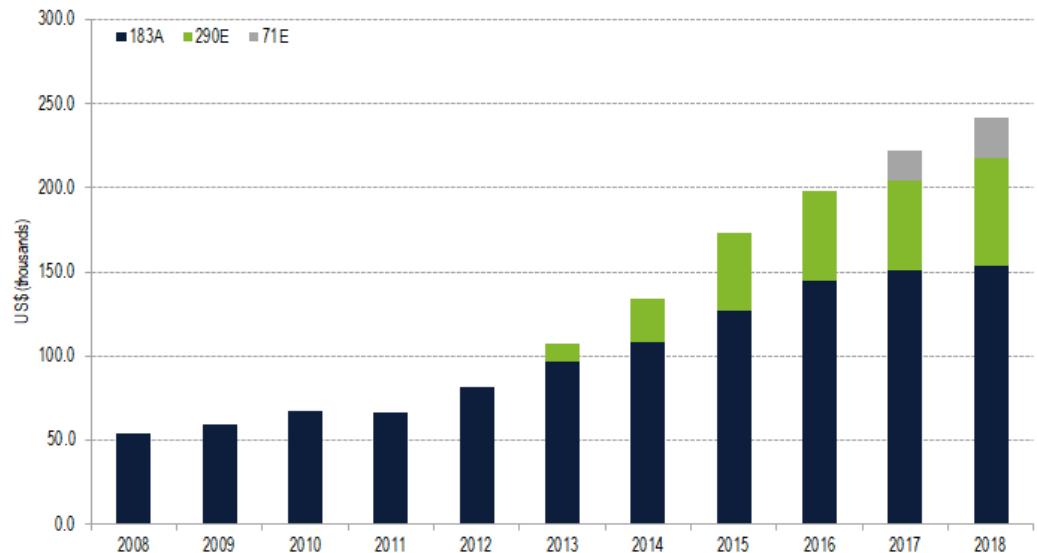
⁴ The first phase opened in March 2007 and the second phase opened in April 2012.

⁵ Also known as the Manor Expressway. The first phase opened in December 2012 with tolling beginning in January 2013 and the second phase opened in May 2014.

Figure 2 shows the Average Annual Daily Revenue (AADR) in real terms from 2008 to 2018. As can be seen, Real AADR had a similar historical growth than the AADT with a CAGR₀₈₋₁₈ of 16.2%. It is worth to mention that the 183A had a CAGR₀₈₋₁₈ of 11.1% and the 290E had a CAGR₁₃₋₁₈ of 44.0%. Considering the addition of 71E to the System in 2017, the participation in 2018 in the Real AADR of the 183A, 290E and 71E was 63.7%, 26.6% and 9.7%, respectively.

It must be noticed that the differences in the participation of the toll roads in the Real AADR, compared with the participation in the AADT, were due to the differences in the Real Weighted Average Toll Rate (WATR), which depends on the toll rate charged and the vehicle composition. In 2018, the Real WATR of the 183A toll road was 1.19x and 1.15x greater than the one of the 290E and 71E toll roads, respectively, because 183A is the most extensive toll road, with 11.6 miles, in comparison with 290E and 71E with 6.2 and 4.0 miles, respectively.

Figure 2. Real Average Annual Daily Revenue (AADR)



Source: HR Ratings with information from the Central Texas Regional Mobility Authority.
Figures in thousands of dollars at January 2019 prices.

Table 2 shows the System’s historical AADT and AADR in real and nominal terms. In 2012 the AADT grew 35.3% because of the 183A second phase opening. In 2013 and 2014, AADT grew 36.6% and 40.7% because of 290E first and second phases opening, respectively. Since 2015, the 290E started a ramp-up period with double digit growths that translate into a CAGR₁₃₋₁₈ of 32.6%.

Also, in 2017, 71E was added to the System, driving growth to a level of 20.6% for AADT and 11.9% for Real AADR. If 71E had not been added to the System, the growth of AADT and Real AADR in 2017 would have been 8.1% and 3.1%. In 2018, AADT grew 5.5% (in line with the growth expected in the base scenario of the last review of 5.3%), driven by a growth rate in 183A, 290E and 71E of 5.9%, 4.2% and 6.8%, respectively. On the other hand, in 2018 Real AADR grew 8.7%, lower than the expected in the base



scenario of the last review of 12.8% because of some timing differences in processing the toll rates. Real AADR growth was 2.1% for 183A, 18.8% for 290E and 34.8% for 71E.

Taking the last into consideration, the CAGR₀₈₋₁₈ of AADT was 16.2%, driven by a CAGR₀₈₋₁₈ of the 183A of 10.4% and a CAGR₁₃₋₁₈ of the 290E of 32.6%. Regarding the traffic behavior in 183A, with information provided by the CTRMA, the growth since 2010 was mainly driven by the population growth in Leander, which in 2018 was 12.5%, and Cedar Park, which grew 41.0% between 2010 and 2018. Regarding the traffic behavior in the 290E, with information provided by the CTRMA, besides the ramp-up period, some factors that are driving growth are: i) strong retail growth (including restaurants and medical care) and ii) population growth in Manor, which in 2018 was 12.0%. Finally, regarding the 71E, with information provided by the CTRMA, one of the main drivers of traffic behavior has been Austin Bergstrom International Airport passenger growth, which in 2018 was close to 13.7%.

Table 2 also shows that Average Daily Traffic (ADT) and Real Average Daily Revenue (ADR) for the first seven months of 2019 grew 5.8% and 2.6%, driven by an increase in ADT of the 71E, 183A and 290E of 5.2%, 6.2% and 5.2%, respectively.

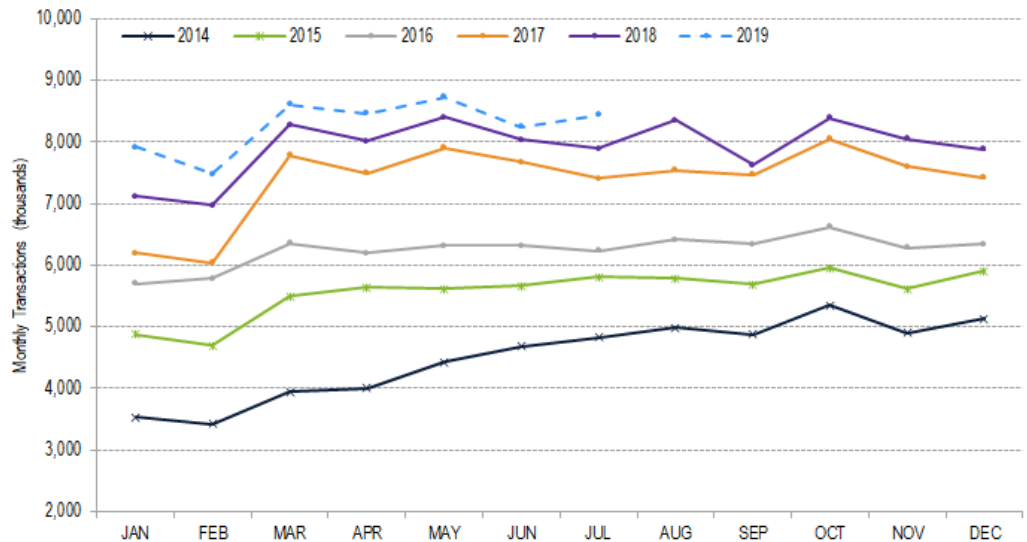
Table 2. Historical AADT and AADR

Year	AADT		Real ¹ AADR		Nominal AADR	
2008	57,961		53,896		45,013	
2009	60,296	4.0%	59,306	10.0%	50,564	12.3%
2010	61,656	2.3%	67,163	13.2%	58,186	15.1%
2011	62,205	0.9%	66,334	-1.2%	59,283	1.9%
2012	84,176	35.3%	81,361	22.7%	74,244	25.2%
2013	114,981	36.6%	107,225	31.8%	99,254	33.7%
2014	161,819	40.7%	134,536	25.5%	126,571	27.5%
2015	182,825	13.0%	173,618	29.0%	163,543	29.2%
2016	204,595	11.9%	198,639	14.4%	189,471	15.9%
2017	246,705	20.6%	222,185	11.9%	216,389	14.2%
2018	260,316	5.5%	241,532	8.7%	240,998	11.4%
2019 ⁽²⁾	272,995	5.8%	248,588	2.6%	251,633	4.4%
CAGR ₀₈₋₁₈	16.2%		16.2%		18.3%	

Source: HR Ratings with information from the Central Texas Regional Mobility Authority. (1) Information presented in dollars at January 2019 prices. (2) Data for the first seven months of 2019. Growth rates for 2019 are calculated considering the comparison with the first seven months of 2018.

Figure 3 shows that the System's traffic has grown every month of every year since 2014, with peaks in March and October, which are mainly due to holiday times and festivals (Austin City Limits happens in October and SXSW in March). It can be noticed that the number of transactions in March 2017 grew in a significant way because of the addition of the 71E to the System. From 2014 to 2018, the first six months had an average participation of 47.8%, while the second semester had an average of 52.2%.

Figure 3. Monthly Transactions



Source: HR Ratings with information from the Central Texas Regional Mobility Authority.

Also, it's worth to mention that most of the traffic in the System is composed by 2-axle vehicles, which, in average, between 2014 and 2018, represented 97.1% of 183A total transactions and 93.7% of 290E total transactions. In 2018, 2-axle vehicles represented 94.4% of 71E total transactions.

Toll Rates

Toll rates are adjusted in January 1st of every year and require the previous approval by the Board of Directors in October 1st of the past year. The adjustment to the toll rates is determined with the increase in the Consumer Price Index – Urban (CPI-U) for the twelve months prior to October 1st, considering that the minimum adjustment is 0.0%. This means that if the CPI-U decreases in such a way that the inflation is negative, the toll rates will be the same as the ones charged the last year.

The CTRMA has two collection methods for toll rates in both toll roads: Electronic Toll Collection (ETC) using an automatic charge to a transponder and Pay by Mail (PbM). Since November 2018, Pay by Mail customers are charged a rate 50.0% higher than the ETC customers. Bills are mailed every 30 days and customers have 30 days to pay them. Each bill has a one-dollar fee surcharge, which is used to cover the costs incurred by this collection method. If the bill is not paid within the first 30 days, a second bill is mailed with an extra US\$15 administrative fee. If this situation is repeated for another 30 days, a third bill will be mailed with a US\$30 bill added on to it. The maximum amount of administrative fees assessed on any one invoice is US\$45 after 90 days of non-payment. If the amount due is not paid after 90 days, then the matter is escalated to a first party collections firm or to one of two enforcement programs (the RMA's new habitual violator program or justice court for failure to pay toll).



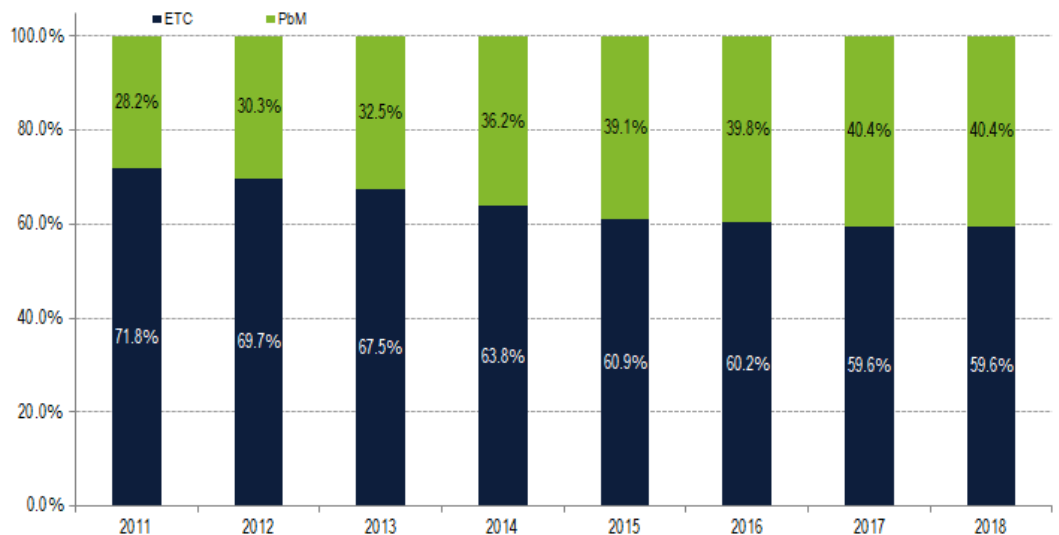
A habitual violator is someone who has 100 or more unpaid tolls in aggregate within a 12-month period and who has been issued two notices of nonpayment. Texas law allows the Authority to place a block preventing a habitual violator's vehicle registration and prohibit the violator's vehicles from using the Authority's toll facilities until outstanding balances are resolved.

Figures 4 and 5 show the percentage of total transactions that are charged with either collection methods in 183A and 290E, respectively. ETC is the most used form of payment, although it has a decreasing participation in 183A (from 71.8% in 2011 to 58.3% in 2018) and a relatively stable participation in 290E with an average of 53.7%.

Moreover, the System's toll collection system is currently interoperable with other governmental agencies or entities such as the TxDOT, Harris County Toll Road Authority (HCTRA), North Texas Tollway Authority (NTTA), Kansas Turnpike Authority (KTA) and Oklahoma Turnpike Authority (OKA).

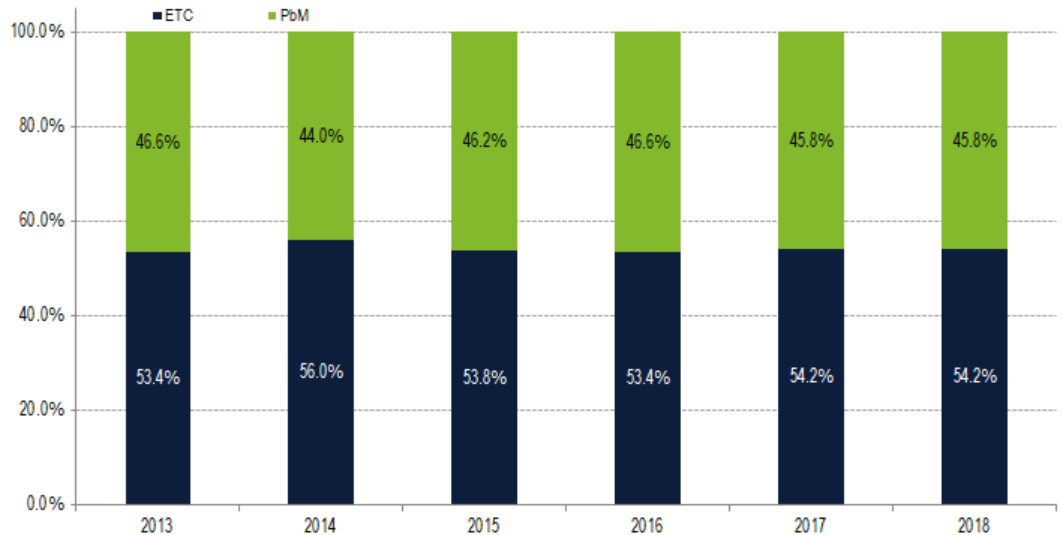
Also, TxDOT generally disburses ETC toll revenues to the Authority's Trustee under the Indenture on a daily basis and the other partnering agencies under such agreement generally disburse ETC toll revenues to the Authority's Trustee under the Indenture on a monthly basis, which causes some timing differences between transactions and revenues.

Figure 4. 183A Collection Methods



Source: HR Ratings with information from the Central Texas Regional Mobility Authority.

Figure 5. 290E Collection Methods



Source: HR Ratings with information from the Central Texas Regional Mobility Authority.

Scenario Analysis

HR Ratings uses two different scenarios to evaluate the payment of the Senior and Subordinated Bonds. The first one, the base scenario, uses the most possible forecasts of traffic and revenue that this credit rating agency considers could happen, considering the historical behavior of traffic and revenue, as well as the traffic and revenue forecasts of the traffic consultant. The second one, the stress scenario, considers the maximum reduction that AADT could have for the revenues to be sufficient to comply with all the debt obligations under a macroeconomic scenario of low economic growth and low inflation.

Due to the flow of funds established on the Master Indenture, the level of stress that could be applied to the Senior Bonds and the Subordinate Bonds would not be the same. The maximum reduction in transactions that could be applied to the Senior Bonds would be such that all the revenues and resources in the Debt Service Reserve Fund shall be used. Therefore, there would not be enough resources for the Subordinate Bonds. Meanwhile, in the maximum reduction applied to the Subordinate Bonds it would be necessary that the revenues are sufficient to comply with the flow of funds previous to the Subordinate Debt Service Fund, so it is necessary that the Senior Bonds are in conformity with their debt obligations. Hence, the reduction applied to the transactions in the stress scenarios would be larger for the Senior Bonds than the one applied to the Subordinate Bonds.

Regarding the expected behavior of revenues, in both scenarios' tolls are adjusted in January of each year in accordance with the CPI-U annual increase since the last toll update. In the base scenario, HR Ratings expects an average inflation of 1.94% between 2019 and 2053, while in the stress scenario the expected average inflation would be 1.34%. It is important to mention that our estimations do not consider a negative level of inflation in any year.



Related to the expenses of the System, we have incorporated the projections of costs of the System provided by the General Engineering Consultant (GEC). Also, for the 71E, we have considered that 50.0% of the net revenue would be applied to the reimbursement related to the Project Agreement with the TxDOT, approximately \$63.0m, until it is fully paid. The outstanding balance of the reimbursement amount as of June 30, 2019 was approximately \$60.7m.

Table 3 shows the expected AADT and Real AADR in the base and stress scenarios. In the base scenario HR Ratings expects that the System's AADT will grow 14.5% in 2019, considering an expected growth for 183A, 290E and 71E of 6.0%, 4.9% and 4.7%, respectively. The expected growth for the Real AADR in the base scenario will be 18.8%. It must be said that, for 2019, the base and stress scenarios consider the interim opening (only the north end) of 183 South in August 2019, with toll charges beginning in September of this year.

In 2020, the full completion of 183 South would drive growth in AADT and Real AADR to a level of 18.9% and 31.2%, respectively. In 2021, considering the information provided by the CTRMA, HR Ratings expects that 290E's Phase III would start operations in July, which jointly with the ramp-up period of the 183 South, would drive growth in the System's AADT and Real AADR to 29.9% and 30.7%, respectively. Afterwards, the base scenario considers decreasing growth rates in AADT that will result in a CAGR₁₈₋₄₇ of 3.9% and a CAGR₁₈₋₅₃ of 3.4%. The CAGR₁₈₋₄₇ and the CAGR₁₈₋₅₃ of Real AADR will be 4.4% and 3.8%, respectively.

As mentioned above, HR Ratings considers two different stress scenarios for the Senior and Subordinate Bonds. For the Senior Bonds, the maximum reduction in transactions that could be applied before the senior debt obligations are compromised will result in a CAGR₁₈₋₄₇ of AADT of -1.4% and a CAGR₁₈₋₄₇ of Real AADR of -0.9%. For the Subordinate Bonds, the CAGR₁₈₋₅₃ of AADT and Real AADR will be -0.9% and -0.5%, respectively.



Table 3. AADT and Real AADR under the Base and Stress Scenarios

Year	AADT						Real ¹ AADR					
	Base		Stress (Senior)		Stress (Subordinate)		Base		Stress (Senior)		Stress (Subordinate)	
2015	182,825	13.0%	182,825	13.0%	182,825	13.0%	173,618	29.0%	173,618	29.0%	173,618	29.0%
2016	204,595	11.9%	204,595	11.9%	204,595	11.9%	198,639	14.4%	198,639	14.4%	198,639	14.4%
2017	246,705	20.6%	246,705	20.6%	246,705	20.6%	222,185	11.9%	222,185	11.9%	222,185	11.9%
2018	260,316	5.5%	260,316	5.5%	260,316	5.5%	241,532	8.7%	241,532	8.7%	241,532	8.7%
2019	298,082	14.5%	292,094	12.2%	293,147	12.6%	286,970	18.8%	280,794	16.3%	281,880	16.7%
2020	354,450	18.9%	332,321	13.8%	336,163	14.7%	376,375	31.2%	353,388	25.9%	357,392	26.8%
2021	460,462	29.9%	403,246	21.3%	410,527	22.1%	491,904	30.7%	437,093	23.7%	444,781	24.5%
2022	494,450	7.4%	426,783	5.8%	437,982	6.7%	529,874	7.7%	467,728	7.0%	479,676	7.8%
2023	515,320	4.2%	418,178	-2.0%	433,249	-1.1%	552,803	4.3%	449,262	-3.9%	465,377	-3.0%
2024	528,202	2.5%	405,805	-3.0%	424,577	-2.0%	566,331	2.4%	435,786	-3.0%	455,871	-2.0%
2025	541,434	2.5%	397,707	-2.0%	420,173	-1.0%	580,159	2.4%	426,765	-2.1%	450,802	-1.1%
2026	555,026	2.5%	389,737	-2.0%	415,774	-1.0%	594,383	2.5%	417,862	-2.1%	445,714	-1.1%
2027	568,989	2.5%	378,403	-2.9%	407,654	-2.0%	608,988	2.5%	405,403	-3.0%	436,683	-2.0%
2028	583,333	2.5%	364,113	-3.8%	396,149	-2.8%	624,011	2.5%	389,894	-3.8%	424,146	-2.9%
2029	598,071	2.5%	350,983	-3.6%	385,652	-2.6%	639,362	2.5%	375,567	-3.7%	412,617	-2.7%
2030	613,213	2.5%	340,725	-2.9%	378,071	-2.0%	655,157	2.5%	364,398	-3.0%	404,294	-2.0%
2031	623,446	1.7%	330,237	-3.1%	370,030	-2.1%	666,158	1.7%	353,227	-3.1%	395,747	-2.1%
2032	633,853	1.7%	319,991	-3.1%	362,069	-2.2%	677,382	1.7%	342,330	-3.1%	387,303	-2.1%
2033	644,434	1.7%	308,062	-3.7%	352,015	-2.8%	688,717	1.7%	329,539	-3.7%	376,518	-2.8%
2034	655,195	1.7%	294,668	-4.3%	340,060	-3.4%	700,281	1.7%	315,196	-4.4%	363,714	-3.4%
2035	666,138	1.7%	281,661	-4.4%	328,287	-3.5%	712,043	1.7%	301,296	-4.4%	351,138	-3.5%
2036	677,265	1.7%	271,051	-3.8%	319,048	-2.8%	724,045	1.7%	290,025	-3.7%	341,347	-2.8%
2037	688,580	1.7%	262,615	-3.1%	312,155	-2.2%	736,165	1.7%	281,045	-3.1%	334,028	-2.1%
2038	700,086	1.7%	254,457	-3.1%	305,428	-2.2%	748,533	1.7%	272,345	-3.1%	326,866	-2.1%
2039	711,787	1.7%	244,978	-3.7%	296,955	-2.8%	761,114	1.7%	262,191	-3.7%	317,789	-2.8%
2040	723,686	1.7%	234,347	-4.3%	286,893	-3.4%	773,951	1.7%	250,816	-4.3%	307,026	-3.4%
2041	734,347	1.5%	224,120	-4.4%	277,105	-3.4%	785,327	1.5%	239,850	-4.4%	296,528	-3.4%
2042	745,165	1.5%	215,249	-4.0%	268,778	-3.0%	796,916	1.5%	230,377	-3.9%	287,642	-3.0%
2043	756,145	1.5%	207,627	-3.5%	261,823	-2.6%	808,677	1.5%	222,239	-3.5%	280,222	-2.6%
2044	767,286	1.5%	200,280	-3.5%	255,052	-2.6%	820,661	1.5%	214,394	-3.5%	272,999	-2.6%
2045	778,593	1.5%	192,394	-3.9%	247,438	-3.0%	832,726	1.5%	205,931	-3.9%	264,824	-3.0%
2046	786,379	1.0%	183,183	-4.8%	237,947	-3.8%	841,053	1.0%	196,046	-4.8%	254,634	-3.8%
2047	794,243	1.0%	174,349	-4.8%	228,740	-3.9%	849,463	1.0%	186,592	-4.8%	244,781	-3.9%
2048	802,185	1.0%	166,619	-4.4%	220,779	-3.5%	858,008	1.0%	178,341	-4.4%	236,290	-3.5%
2049	810,207	1.0%	159,888	-4.0%	213,965	-3.1%	866,538	1.0%	171,135	-4.0%	228,995	-3.1%
2050	818,309	1.0%	153,439	-4.0%	207,373	-3.1%	874,401	0.9%	164,134	-4.1%	221,806	-3.1%
2051	826,492	1.0%	147,249	-4.0%	200,984	-3.1%	882,352	0.9%	157,419	-4.1%	214,844	-3.1%
2052	834,757	1.0%	141,287	-4.0%	194,762	-3.1%	891,325	1.0%	151,133	-4.0%	208,311	-3.0%
2053	843,105	1.0%	135,546	-4.1%	188,706	-3.1%	898,516	0.8%	144,765	-4.2%	201,517	-3.3%
CAGR ₁₈₋₄₇	3.9%		-1.4%				4.4%		-0.9%			
CAGR ₁₈₋₅₃	3.4%				-0.9%		3.8%				-0.5%	

Source: HR Ratings based on internal projections.
Figures in thousands of dollars. (1) Figures in dollars at January 2019 prices.

Considering the above, the cumulative difference of real revenues between the base scenario and the Senior Bonds stress scenario would be 52.6%, which would be equivalent to an Annualized Stress Rate (ASR) of 2.59%. In the case of the Subordinate Bond stress scenario, the cumulative difference of real revenues would be 52.7%, which would be equivalent to an ASR of 2.15%. Figure 7 presents the observed Real AADR as well as the projections for the base scenario and both stress scenarios.



Figure 6. Projected Real AADR - Base Scenario vs Stress Scenarios



Source: HR Ratings with information from the Central Texas Regional Mobility Authority and internal projections. Figures in thousands of dollars at January 2019 prices.

Base Scenario

Table 4 shows the expected system cash flow in nominal terms from 2020 to 2053 (year in which the 2019 TIFIA Loan will be amortized). System’s operation and maintenance expenses would represent on average 13.7% of revenues from 2020 to 2053. Also, the negative quantities that appear on the Debt Service Reserve Funds refer to excess amounts, which are released and deposited in the revenues account to be used as stated in the flow of funds. Since 2048 there would be no deposits or withdrawals from the Senior Lien DSRF because there would be no outstanding Senior Bonds. Also, the significant amount released in 2049 and 2050 from the Subordinate Lien DSRF corresponds to 89.8% of the balance in the fund due to the total amortization of the Subordinate Bonds except the 2019 TIFIA Loan, which will be amortized in 2053.

According to the Master Trust Indenture, amounts available after the Subordinate Reserve Fund would be used for Replacement and Renewal. The projections for replacement and renewal were considering the GEC estimations and as it can be seen in Table 4, the revenues would be available to meet all the requirements. Also, revenues would be sufficient to comply with the Non-System Expenses. Afterwards, the amount available in the General Fund could be used to (i) Purchase or Redeem Obligations, (ii) Maintenance or Operating Expenses, (iii) Construction Fund or, (iv) Improvements or extensions of the System.



Table 4. System Cash Flow Under the Base Scenario (thousands of nominal dollars)

Year (ending Dec 31)	Revenues	Operation and Maintenance Expenses	Revenues Available for Senior Lien Debt Service	Senior Lien Debt Service ²		Senior Lien DSRF Replenish / (Release)	Revenues Available for Subordinate Lien Debt Service	Subordinate Lien Debt Service ¹		Subordinate Lien DSRF Replenish / (Release)	Revenues Available for Renewal and Replacement Fund and Non-System Expenses	Renewal and Replacement Fund	Non-System Expenses	Revenues Available for General Fund
				Interest	Principal			Interest	Principal					
2020	140,208	27,660	112,548	27,392	13,060	1,429	70,667	12,714	2,905	23,238	31,811	-	4,960	26,851
2021	184,054	33,242	150,812	36,517	15,540	1,292	97,463	12,573	3,045	(171)	82,017	6,722	5,058	70,237
2022	204,058	34,219	169,839	42,101	17,683	815	109,240	10,584	3,895	(182)	94,943	-	5,163	89,779
2023	216,751	34,285	182,466	43,130	19,951	480	118,904	10,390	5,235	(148)	103,427	1,126	5,266	97,035
2024	226,710	37,209	189,501	51,725	16,777	343	120,657	21,093	5,775	(205)	93,994	979	5,374	87,640
2025	235,696	37,516	198,180	50,208	19,242	66	128,664	21,520	7,870	(231)	99,506	-	5,479	94,026
2026	245,774	39,075	206,698	48,165	22,184	16	136,333	21,157	8,266	(250)	107,160	895	5,594	100,671
2027	256,194	43,352	212,842	47,967	23,226	(39)	141,687	20,728	10,085	(270)	111,144	509	5,703	104,932
2028	268,052	42,342	225,710	47,318	24,788	(98)	153,702	20,302	15,356	(287)	118,331	13,334	5,821	99,176
2029	279,070	43,039	236,031	46,570	31,013	(172)	158,621	19,572	22,196	(313)	117,166	-	5,941	111,225
2030	291,438	44,861	246,577	44,528	33,045	(595)	169,600	18,726	23,121	(347)	128,101	3,030	6,066	119,005
2031	301,956	44,226	257,730	43,349	34,229	(669)	180,821	17,827	23,968	(383)	139,409	-	6,189	133,220
2032	313,791	46,325	267,465	42,067	35,510	(759)	190,647	16,937	24,821	(411)	149,300	1,081	6,316	141,903
2033	324,480	48,546	275,934	40,695	36,886	(867)	199,221	15,970	25,855	(449)	157,846	360	6,446	151,040
2034	336,528	44,506	292,022	39,233	38,361	(1,001)	215,428	14,975	26,838	(502)	174,117	626	6,582	166,910
2035	348,927	44,054	304,874	36,325	41,259	(1,169)	228,459	13,928	27,807	(553)	187,277	434	6,712	180,132
2036	362,870	46,521	316,349	34,624	42,958	(1,380)	240,147	12,956	28,851	(605)	198,945	31,772	6,846	160,327
2037	375,357	45,853	329,503	32,821	44,759	(1,656)	253,579	11,870	29,885	(681)	212,505	19,349	6,983	186,173
2038	389,359	47,031	342,328	30,912	46,803	(2,024)	266,636	10,754	31,038	(770)	225,614	654	7,123	217,837
2039	403,739	51,324	352,414	28,883	48,836	(2,551)	277,245	9,584	32,152	(867)	236,378	404	7,258	228,715
2040	419,892	51,113	368,779	16,583	61,130	(3,280)	294,346	8,395	34,375	(986)	252,563	523	7,402	244,638
2041	433,477	53,659	379,818	13,983	50,320	(4,372)	319,887	7,131	25,891	(1,238)	288,103	251	7,535	280,317
2042	448,749	56,613	392,135	11,467	51,580	(2,769)	331,857	6,219	22,362	(449)	303,725	13,612	7,674	282,438
2043	464,569	55,943	408,626	8,888	54,235	(3,760)	349,263	5,488	23,092	(5)	320,688	15,124	7,822	297,742
2044	482,270	58,607	423,663	6,176	84,325	(6,299)	339,461	4,752	23,824	(10)	310,895	12,905	7,979	290,011
2045	497,917	58,909	439,008	1,960	33,225	(29,709)	433,532	3,974	24,601	(5)	404,962	1,075	8,133	395,754
2046	513,063	59,307	453,756	299	2,915	(20,785)	471,328	3,176	25,393	(10)	442,769	9,385	8,256	425,127
2047	528,671	60,927	467,744	153	3,060	(3,214)	467,744	2,350	26,219	(6)	439,181	13,979	8,423	416,779
2048	546,246	66,883	479,363	-	-	-	479,363	1,504	27,058	(12)	450,812	18,358	8,593	423,860
2049	561,326	66,134	495,192	-	-	-	495,192	624	17,350	(10,594)	487,811	12,769	8,767	466,275
2050	571,319	64,451	506,868	-	-	-	506,868	302	2,591	(15,088)	519,064	-	8,944	510,120
2051	581,545	63,634	517,911	-	-	-	517,911	224	2,668	(6)	515,025	-	9,124	505,901
2052	593,633	63,400	530,233	-	-	-	530,233	145	2,747	(6)	527,347	-	9,307	518,040
2053	602,723	63,572	539,151	-	-	-	539,151	63	2,829	(2,899)	539,158	-	9,495	529,663

Source: HR Ratings based on internal projections.

Figures in thousands of dollars. (1) Interest and principal covered with the available revenues.

Tables 5 and 6 show the expected performance of the Senior and Subordinate Bonds in the base scenario. Regarding the Senior Bonds, in Table 5 can be seen that there would be no need to use the resources of the General Fund or the Senior Lien DSRF because the revenues available to cover the senior debt obligations will always be enough. The minimum and average Senior Debt Service Coverage Ratios would be 2.25x and 13.69x, respectively.

Regarding the Subordinate Bonds, in Table 6 can be seen that there would be no need to use the resources of the Subordinate Lien DSRF in any moment. The minimum and average Subordinate Debt Service Coverage Ratios would be 1.68x and 24.89x, respectively.



Table 5. Performance of the Senior Lien Obligations Under the Base Scenario

Year (ending Dec 31)	Beginning Balance	Interest				Principal				Ending Balance
		Due	Paid with Revenues	Paid with General Fund	Paid with DSRF	Due	Paid with Revenues	Paid with General Fund	Paid with DSRF	
2020	946,900	27,392	27,392	-	-	13,060	13,060	-	-	933,840
2021	933,840	36,517	36,517	-	-	15,540	15,540	-	-	918,299
2022	918,299	42,101	42,101	-	-	17,683	17,683	-	-	900,616
2023	900,616	43,130	43,130	-	-	19,951	19,951	-	-	880,664
2024	880,664	51,725	51,725	-	-	16,777	16,777	-	-	863,888
2025	863,888	50,208	50,208	-	-	19,242	19,242	-	-	844,646
2026	844,646	48,165	48,165	-	-	22,184	22,184	-	-	822,461
2027	822,461	47,967	47,967	-	-	23,226	23,226	-	-	799,235
2028	799,235	47,318	47,318	-	-	24,788	24,788	-	-	774,447
2029	774,447	46,570	46,570	-	-	31,013	31,013	-	-	743,434
2030	743,434	44,528	44,528	-	-	33,045	33,045	-	-	710,390
2031	710,390	43,349	43,349	-	-	34,229	34,229	-	-	676,161
2032	676,161	42,067	42,067	-	-	35,510	35,510	-	-	640,651
2033	640,651	40,695	40,695	-	-	36,886	36,886	-	-	603,765
2034	603,765	39,233	39,233	-	-	38,361	38,361	-	-	565,404
2035	565,404	36,325	36,325	-	-	41,259	41,259	-	-	524,146
2036	524,146	34,624	34,624	-	-	42,958	42,958	-	-	481,188
2037	481,188	32,821	32,821	-	-	44,759	44,759	-	-	436,429
2038	436,429	30,912	30,912	-	-	46,803	46,803	-	-	389,626
2039	389,626	28,883	28,883	-	-	48,836	48,836	-	-	340,790
2040	340,790	16,583	16,583	-	-	61,130	61,130	-	-	279,660
2041	279,660	13,983	13,983	-	-	50,320	50,320	-	-	229,340
2042	229,340	11,467	11,467	-	-	51,580	51,580	-	-	177,760
2043	177,760	8,888	8,888	-	-	54,235	54,235	-	-	123,525
2044	123,525	6,176	6,176	-	-	84,325	84,325	-	-	39,200
2045	39,200	1,960	1,960	-	-	33,225	33,225	-	-	5,975
2046	5,975	299	299	-	-	2,915	2,915	-	-	3,060
2047	3,060	153	153	-	-	3,060	3,060	-	-	0

Source: HR Ratings based on internal projections.

Figures in thousands of dollars.



Table 6. Performance of the Subordinate Lien Obligations Under the Base Scenario

Year (ending Dec 31)	Beginning Balance	Interest			Principal				Ending Balance	
		Due	Paid with Revenues	Paid with General Fund	Paid with DSRF	Due	Paid with Revenues	Paid with General Fund		Paid with DSRF
2020	619,967	12,714	12,714	-	-	2,905	2,905	-	-	617,062
2021	617,062	12,573	12,573	-	-	3,045	3,045	-	-	614,017
2022	614,017	10,584	10,584	-	-	3,895	3,895	-	-	610,122
2023	610,122	10,390	10,390	-	-	5,235	5,235	-	-	604,887
2024	604,887	21,093	21,093	-	-	5,775	5,775	-	-	599,112
2025	599,112	21,520	21,520	-	-	7,870	7,870	-	-	591,241
2026	591,241	21,157	21,157	-	-	8,266	8,266	-	-	582,975
2027	582,975	20,728	20,728	-	-	10,085	10,085	-	-	572,891
2028	572,891	20,302	20,302	-	-	15,356	15,356	-	-	557,535
2029	557,535	19,572	19,572	-	-	22,196	22,196	-	-	535,339
2030	535,339	18,726	18,726	-	-	23,121	23,121	-	-	512,218
2031	512,218	17,827	17,827	-	-	23,968	23,968	-	-	488,249
2032	488,249	16,937	16,937	-	-	24,821	24,821	-	-	463,428
2033	463,428	15,970	15,970	-	-	25,855	25,855	-	-	437,573
2034	437,573	14,975	14,975	-	-	26,838	26,838	-	-	410,735
2035	410,735	13,928	13,928	-	-	27,807	27,807	-	-	382,928
2036	382,928	12,956	12,956	-	-	28,851	28,851	-	-	354,077
2037	354,077	11,870	11,870	-	-	29,885	29,885	-	-	324,192
2038	324,192	10,754	10,754	-	-	31,038	31,038	-	-	293,153
2039	293,153	9,584	9,584	-	-	32,152	32,152	-	-	261,002
2040	261,002	8,395	8,395	-	-	34,375	34,375	-	-	226,627
2041	226,627	7,131	7,131	-	-	25,891	25,891	-	-	200,735
2042	200,735	6,219	6,219	-	-	22,362	22,362	-	-	178,373
2043	178,373	5,488	5,488	-	-	23,092	23,092	-	-	155,281
2044	155,281	4,752	4,752	-	-	23,824	23,824	-	-	131,458
2045	131,458	3,974	3,974	-	-	24,601	24,601	-	-	106,857
2046	106,857	3,176	3,176	-	-	25,393	25,393	-	-	81,463
2047	81,463	2,350	2,350	-	-	26,219	26,219	-	-	55,244
2048	55,244	1,504	1,504	-	-	27,058	27,058	-	-	28,186
2049	28,186	624	624	-	-	17,350	17,350	-	-	10,836
2050	10,836	302	302	-	-	2,591	2,591	-	-	8,245
2051	8,245	224	224	-	-	2,668	2,668	-	-	5,577
2052	5,577	145	145	-	-	2,747	2,747	-	-	2,829
2053	2,829	63	63	-	-	2,829	2,829	-	-	-

Source: HR Ratings based on internal projections.
Figures in thousands of dollars.

Stress Scenarios

This scenario is determined by the maximum level of stress in terms of reductions of transactions, in order that the Senior and Subordinate debt obligations are met. In that case, since the Master Trust Indenture establishes that the Senior Debt Service Fund



and Senior Debt Service Reserve Fund shall be fully funded before any amount could be deposited in the Subordinate Debt Service Fund, the maximum reduction in terms of transactions that could be applied to the Senior Bonds is greater than the Subordinate Bonds.

Senior Bonds

Table 7 shows the expected System cash flow under the Senior Bonds stress scenario. In this case System's operation and maintenance expenses would represent on average 38.7% compared with the 13.7% obtained in the base scenario. The lower revenues would result in revenues in real terms available for debt service 62.0% lower than the ones that would be obtained in the base scenario.

Table 7. System Cash Flow Under the Stress Scenario [Senior Lien] (thousands of nominal dollars)

Year (ending Dec 31)	Revenues	Operation and Maintenance Expenses	Revenues Available for Senior Lien Debt Service	Senior Lien Debt Service ²		Senior Lien DSRF Replenish / (Release)	Revenues Available for Subordinate Lien Debt Service	Subordinate Lien Debt Service ¹		Subordinate Lien DSRF Replenish / (Release)	Revenues Available for Renewal and Replacement Fund and Non-System Expenses	Renewal and Replacement Fund	Non-System Expenses	Revenues Available for General Fund
				Interest	Principal			Interest	Principal					
2020	131,529	28,480	103,048	27,392	13,060	1,429	61,167	12,714	2,905	23,238	22,311	-	3,204	19,107
2021	164,515	33,885	130,630	36,517	15,540	1,292	77,281	12,573	3,045	(171)	61,835	7,013	5,277	49,545
2022	175,030	34,434	140,597	42,101	17,683	815	79,998	10,584	3,895	(182)	65,700	-	5,367	60,333
2023	174,099	34,001	140,098	43,130	19,951	480	76,536	10,390	5,235	(148)	61,059	1,165	5,453	54,441
2024	171,628	36,531	135,097	51,725	16,777	343	66,253	21,093	5,775	(205)	39,590	1,009	5,539	33,041
2025	169,652	36,353	133,300	50,208	19,242	66	63,784	21,520	7,870	(231)	34,625	-	3,827	30,798
2026	168,099	37,435	130,664	48,165	22,184	16	60,299	21,157	6,561	(250)	32,831	456	2,851	29,524
2027	164,943	41,226	123,717	47,967	23,226	(39)	52,561	20,728	3,606	(270)	28,498	258	2,889	25,351
2028	160,983	39,603	121,380	47,318	24,788	(98)	49,372	18,950	2,727	(287)	27,982	6,713	2,931	18,338
2029	156,578	39,726	116,852	46,570	31,013	(172)	39,441	10,385	8,413	(313)	20,957	-	2,972	17,984
2030	153,848	40,970	112,878	44,528	30,750	(595)	38,196	9,985	8,687	(347)	19,871	1,506	3,016	15,349
2031	150,999	39,805	111,195	43,349	30,300	(669)	38,215	9,620	8,968	(383)	20,009	-	3,057	16,952
2032	148,602	41,323	107,280	42,067	28,808	(759)	37,164	9,269	9,252	(411)	19,054	531	3,100	15,423
2033	144,552	44,406	100,147	40,695	25,751	(867)	34,568	8,891	9,570	(449)	16,556	176	3,144	13,237
2034	140,115	45,255	94,859	39,233	23,667	(1,001)	32,960	8,532	9,881	(502)	15,048	303	3,189	11,555
2035	135,699	44,452	91,246	36,325	23,828	(1,169)	32,262	8,187	10,200	(553)	14,428	209	3,231	10,988
2036	132,727	46,404	86,323	34,624	22,054	-	29,645	6,537	10,525	(605)	13,188	13,188	-	-
2037	130,007	45,109	84,898	32,821	22,088	11,825	18,164	5,993	10,890	1,281	-	-	-	-
2038	127,691	46,067	81,624	30,912	21,259	21,016	8,438	5,440	2,998	-	-	-	-	-
2039	124,558	49,687	74,871	28,883	18,752	23,521	3,715	3,715	-	-	-	-	-	-
2040	121,078	48,998	72,081	16,583	28,444	27,054	-	-	-	-	-	-	-	-
2041	117,039	50,985	66,054	13,983	26,707	25,364	-	-	-	-	-	-	-	-
2042	113,942	53,289	60,653	11,467	25,247	23,763	176	176	-	-	-	-	-	-
2043	111,411	52,186	59,225	8,888	25,807	23,565	965	965	-	-	-	-	-	-
2044	109,232	54,067	55,165	6,176	25,121	23,868	-	-	-	-	-	-	-	-
2045	106,065	54,083	51,982	1,960	25,619	24,403	-	-	-	-	-	-	-	-
2046	102,348	53,947	48,401	299	2,915	(13,587)	58,774	3,176	25,376	28,610	1,611	1,611	-	-
2047	98,739	55,036	43,703	153	3,060	(3,214)	43,704	2,350	26,219	(6)	15,141	11,077	3,751	312

Source: HR Ratings based on internal projections.
Figures in thousands of dollars. (1) Interest and principal covered with the available revenues.

The diminishing revenues expected since 2023 would imply the need for the use of resources of the General Fund from 2030 to 2036 for a total amount of approximately US\$63.9m and of the Senior Lien DSRF from 2036 to 2045 for a total amount of US\$269.4m to pay principal that would not be paid with the revenues available for debt



service. In this scenario, the minimum and average Senior Debt Service Coverage Ratios would be 0.61x and 2.39x, respectively.

Table 8. Performance of the Senior Lien Obligations Under the Stress Scenario

Year (ending Dec 31)	Beginning Balance	Interest				Principal				Ending Balance
		Due	Paid with Revenues	Paid with General Fund	Paid with DSRF	Due	Paid with Revenues	Paid with General Fund	Paid with DSRF	
2020	946,900	27,392	27,392	-	-	13,060	13,060	-	-	933,840
2021	933,840	36,517	36,517	-	-	15,540	15,540	-	-	918,299
2022	918,299	42,101	42,101	-	-	17,683	17,683	-	-	900,616
2023	900,616	43,130	43,130	-	-	19,951	19,951	-	-	880,664
2024	880,664	51,725	51,725	-	-	16,777	16,777	-	-	863,888
2025	863,888	50,208	50,208	-	-	19,242	19,242	-	-	844,646
2026	844,646	48,165	48,165	-	-	22,184	22,184	-	-	822,461
2027	822,461	47,967	47,967	-	-	23,226	23,226	-	-	799,235
2028	799,235	47,318	47,318	-	-	24,788	24,788	-	-	774,447
2029	774,447	46,570	46,570	-	-	31,013	31,013	-	-	743,434
2030	743,434	44,528	44,528	-	-	33,045	30,750	2,295	-	710,390
2031	710,390	43,349	43,349	-	-	34,229	30,300	3,929	-	676,161
2032	676,161	42,067	42,067	-	-	35,510	28,808	6,703	-	640,651
2033	640,651	40,695	40,695	-	-	36,886	25,751	11,135	-	603,765
2034	603,765	39,233	39,233	-	-	38,361	23,667	14,694	-	565,404
2035	565,404	36,325	36,325	-	-	41,259	23,828	17,430	-	524,146
2036	524,146	34,624	34,624	-	-	42,958	22,054	7,698	13,205	481,188
2037	481,188	32,821	32,821	-	-	44,759	22,088	-	22,671	436,429
2038	436,429	30,912	30,912	-	-	46,803	21,259	-	25,544	389,626
2039	389,626	28,883	28,883	-	-	48,836	18,752	-	30,084	340,790
2040	340,790	16,583	16,583	-	-	61,130	28,444	-	32,686	279,660
2041	279,660	13,983	13,983	-	-	50,320	26,707	-	23,613	229,340
2042	229,340	11,467	11,467	-	-	51,580	25,247	-	26,333	177,760
2043	177,760	8,888	8,888	-	-	54,235	25,807	-	28,428	123,525
2044	123,525	6,176	6,176	-	-	84,325	25,121	-	59,204	39,200
2045	39,200	1,960	1,960	-	-	33,225	25,619	-	7,606	5,975
2046	5,975	299	299	-	-	2,915	2,915	-	-	3,060
2047	3,060	153	153	-	-	3,060	3,060	-	-	0

Source: HR Ratings based on internal projections.

Figures in thousands of dollars.

Subordinate Bonds

In the Subordinate Bonds stress scenario, the System's operation and maintenance expenses would represent on average 31.9% compared with the 38.7% obtained in the Senior Bonds stress scenario, which would reflect the lower stress that the Subordinate Bonds can bear. Also, the revenues in real terms available for the Subordinate Bonds debt service would be 75.6% lower than the ones that would be obtained in the base scenario.

Table 9. System Cash Flow Under the Stress Scenario [Subordinate Lien] (thousands of nominal dollars)

Year (ending Dec 31)	Revenues	Operation and Maintenance Expenses	Revenues Available for Senior Lien Debt Service	Senior Lien Debt Service ²		Senior Lien DSRF Replenish / (Release)	Revenues Available for Subordinate Lien Debt Service	Subordinate Lien Debt Service ¹		Subordinate Lien DSRF Replenish / (Release)	Revenues Available for Renewal and Replacement Fund and Non- System Expenses	Renewal and Replacement Fund	Non- System Expenses	Revenues Available for General Fund
				Interest	Principal			Interest	Principal					
2020	133,019	28,555	104,464	27,392	13,060	1,429	62,583	12,714	2,905	23,238	23,726	-	3,872	19,854
2021	167,409	34,010	133,399	36,517	15,540	1,292	80,050	12,573	3,045	(171)	64,603	7,013	5,277	52,313
2022	179,596	34,608	144,988	42,101	17,683	815	84,388	10,584	3,895	(182)	70,091	-	5,367	64,724
2023	180,344	34,220	146,124	43,130	19,951	480	82,561	10,390	5,235	(148)	67,085	1,165	5,453	60,467
2024	179,538	36,792	142,746	51,725	16,777	343	73,901	21,093	5,775	(205)	47,239	1,009	5,539	40,690
2025	179,208	36,653	142,555	50,208	19,242	66	73,039	21,520	7,870	(231)	43,881	-	5,617	38,264
2026	179,303	37,771	141,532	48,165	22,184	16	71,166	21,157	8,266	(250)	41,994	912	5,702	35,380
2027	177,670	41,594	136,075	47,967	23,226	(39)	64,920	20,728	9,862	(270)	34,600	258	2,889	31,453
2028	175,125	39,999	135,126	47,318	24,788	(98)	63,118	20,302	8,333	(287)	34,770	6,713	2,931	25,126
2029	172,024	40,145	131,879	46,570	31,013	(172)	54,468	17,991	8,413	(313)	28,377	-	2,972	25,405
2030	170,692	41,414	129,279	44,528	33,045	(595)	52,301	15,991	8,687	(347)	27,970	1,506	3,016	23,449
2031	169,176	40,269	128,907	43,349	34,229	(669)	51,998	14,656	8,968	(383)	28,757	-	3,057	25,700
2032	168,125	41,807	126,318	42,067	35,510	(759)	49,500	12,202	9,252	(411)	28,457	531	3,100	24,826
2033	165,159	44,903	120,256	40,695	35,928	(867)	44,501	8,891	9,570	(449)	26,489	176	3,144	23,170
2034	161,682	45,764	115,919	39,233	34,324	(1,001)	43,362	8,532	9,881	(502)	25,450	303	3,189	21,958
2035	158,147	44,969	113,178	36,325	34,927	(1,169)	43,095	8,187	10,200	(553)	25,261	209	3,231	21,821
2036	156,214	46,930	109,284	34,624	33,673	(1,380)	42,367	7,917	10,525	(605)	24,530	15,197	3,274	6,059
2037	154,516	45,644	108,873	32,821	34,219	(1,656)	43,488	7,649	10,890	(681)	25,631	9,195	3,318	13,117
2038	153,254	46,609	106,645	30,912	33,919	(2,024)	43,838	7,464	11,242	(770)	25,902	309	3,363	22,230
2039	150,971	50,233	100,738	28,883	31,840	(2,551)	42,565	7,415	11,612	(867)	24,405	190	3,405	20,811
2040	148,214	49,546	98,667	16,583	41,896	(2,044)	42,233	6,320	11,992	(986)	24,907	244	3,450	21,214
2041	144,695	51,533	93,163	13,983	40,423	-	38,757	3,645	12,397	22,714	-	-	-	-
2042	142,265	53,839	88,426	11,467	39,298	5,525	32,135	3,195	12,804	16,137	-	-	-	-
2043	140,479	52,740	87,739	8,888	40,234	9,513	29,104	2,838	13,229	13,036	-	-	-	-
2044	139,091	54,626	84,466	6,176	39,945	10,241	28,103	2,476	13,659	11,969	-	-	-	-
2045	136,397	54,641	81,756	1,960	33,225	8,372	38,200	2,916	10,482	24,802	-	-	-	-
2046	132,935	54,503	78,431	299	2,915	(20,785)	96,003	3,176	25,393	3,776	63,657	8,414	7,402	47,840
2047	129,531	55,591	73,940	153	3,060	(3,214)	73,940	2,350	26,219	(6)	45,377	12,452	7,503	25,423
2048	127,079	60,425	66,655	-	-	-	66,655	1,504	27,058	(12)	38,104	16,247	7,605	14,252
2049	124,500	59,271	65,229	-	-	-	65,229	624	17,350	(10,594)	57,849	11,227	7,709	38,913
2050	121,322	57,414	63,908	-	-	-	63,908	302	2,591	(15,088)	76,103	-	7,813	68,290
2051	118,229	55,229	63,000	-	-	-	63,000	224	2,668	(6)	60,114	-	7,919	52,195
2052	115,525	54,670	60,855	-	-	-	60,855	145	2,747	(6)	57,969	-	8,026	49,944
2053	112,262	54,463	57,798	-	-	-	57,798	63	2,829	(2,899)	57,805	-	8,134	49,671

Source: HR Ratings based on internal projections.

Figures in thousands of dollars. (1) Interest and principal covered with the available revenues.

Table 10 shows the expected performance of the Subordinate Bonds in the stress scenario. Revenues available for the Subordinate Bonds debt service would not always be enough to cover interest and principal, so it would be required the use of the General Fund and the Subordinate Lien DSRF to cover the missing amounts for a total amount of US\$240.7m and US\$94.2m, respectively. In this scenario, the minimum and average Subordinate Debt Service Coverage Ratios would be 0.71x and 3.67x, respectively.



**Credit
Rating
Agency**

**Central Texas Regional Mobility Authority
Senior Lien Revenue Bonds
Subordinate Lien Revenue Bonds**

**HR A- (G)
HR BBB+ (G)**

Infrastructure
September 24, 2019

A NRSRO Rating*

Table 10. Performance of the Subordinate Lien Obligations Under the Stress Scenario

Year (ending Dec 31)	Beginning Balance	Interest				Principal				Ending Balance
		Due	Paid with Revenues	Paid with General Fund	Paid with DSRF	Due	Paid with Revenues	Paid with General Fund	Paid with DSRF	
2020	619,967	12,714	12,714	-	-	2,905	2,905	-	-	617,062
2021	617,062	12,573	12,573	-	-	3,045	3,045	-	-	614,017
2022	614,017	10,584	10,584	-	-	3,895	3,895	-	-	610,122
2023	610,122	10,390	10,390	-	-	5,235	5,235	-	-	604,887
2024	604,887	21,093	21,093	-	-	5,775	5,775	-	-	599,112
2025	599,112	21,520	21,520	-	-	7,870	7,870	-	-	591,241
2026	591,241	21,157	21,157	-	-	8,266	8,266	-	-	582,975
2027	582,975	20,728	20,728	-	-	10,085	9,862	223	-	572,891
2028	572,891	20,302	20,302	-	-	15,356	8,333	7,023	-	557,535
2029	557,535	19,572	17,991	1,581	-	22,196	8,413	13,783	-	535,339
2030	535,339	18,726	15,991	2,734	-	23,121	8,687	14,434	-	512,218
2031	512,218	17,827	14,656	3,170	-	23,968	8,968	15,000	-	488,249
2032	488,249	16,937	12,202	4,735	-	24,821	9,252	15,569	-	463,428
2033	463,428	15,970	8,891	7,079	-	25,855	9,570	16,285	-	437,573
2034	437,573	14,975	8,532	6,443	-	26,838	9,881	16,956	-	410,735
2035	410,735	13,928	8,187	5,741	-	27,807	10,200	17,607	-	382,928
2036	382,928	12,956	7,917	5,039	-	28,851	10,525	18,327	-	354,077
2037	354,077	11,870	7,649	4,221	-	29,885	10,890	18,995	-	324,192
2038	324,192	10,754	7,464	3,290	-	31,038	11,242	19,797	-	293,153
2039	293,153	9,584	7,415	2,168	-	32,152	11,612	20,540	-	261,002
2040	261,002	8,395	6,320	-	2,075	34,375	11,992	-	22,383	226,627
2041	226,627	7,131	3,645	-	3,486	25,891	12,397	-	13,494	200,735
2042	200,735	6,219	3,195	-	3,024	22,362	12,804	-	9,558	178,373
2043	178,373	5,488	2,838	-	2,650	23,092	13,229	-	9,863	155,281
2044	155,281	4,752	2,476	-	2,276	23,824	13,659	-	10,165	131,458
2045	131,458	3,974	2,916	-	1,058	24,601	10,482	-	14,119	106,857
2046	106,857	3,176	3,176	-	-	25,393	25,393	-	-	81,463
2047	81,463	2,350	2,350	-	-	26,219	26,219	-	-	55,244
2048	55,244	1,504	1,504	-	-	27,058	27,058	-	-	28,186
2049	28,186	624	624	-	-	17,350	17,350	-	-	10,836
2050	10,836	302	302	-	-	2,591	2,591	-	-	8,245
2051	8,245	224	224	-	-	2,668	2,668	-	-	5,577
2052	5,577	145	145	-	-	2,747	2,747	-	-	2,829
2053	2,829	63	63	-	-	2,829	2,829	-	-	-

Source: HR Ratings based on internal projections.
Figures in thousands of dollars.

*HR Ratings LLC. (HR Ratings), is a HR Ratings de México, S.A. de C.V. subsidiary, a Credit Rating Agency registered by the Securities and Exchange Commission (SEC) of the United States as an NRSRO for this type of rating. HR Ratings' recognition as an NRSRO is limited to the ones described in section 3 (a) (62) (A) and (B) subsection (i), (iii) and (v) of the US Securities Exchange Act of 1934.



Credit
Rating
Agency

A NRSRO Rating*

Central Texas Regional Mobility Authority
Senior Lien Revenue Bonds
Subordinate Lien Revenue Bonds

HR A- (G)
HR BBB+ (G)

Infrastructure
September 24, 2019

Technical note for the incorporation of the risk regarding construction over the debt backed by infrastructure projects and future flows

The construction phase of a project is very important for its development because the cash flows generated by the project depend directly on the asset being fully or partially operational, so delays during the construction phase or costs above estimates could substantially affect these flows and compromise the payment of interest and principal of the debt issued. This technical note applies for this ratings because two projects are under construction phase: i) 183 South, which opened partly (just the northern segment) on July 31, 2019, and the remainder (ultimate build) is expected to open on August 2020 and ii) 290E Phase III, which will consist of two tolled Direct Connectors (DC), southbound SH 130 to westbound 290E and northbound SH 130 to westbound 290E, owned and operated by the CTRMA, and one free DC, eastbound 290E to southbound SH 130, owned and operated by the TxDOT. 290E Phase III started construction activities on March 2019, and it is expected to start full operations on July 2021.



Appendix

I. Central Texas Regional Mobility Authority

The Central Texas Regional Mobility Authority (CTRMA and/or the Authority) is an independent government agency formed through a jointly petition of the Travis County and the Williamson County filed on September of 2002 and authorized by the Texas Transportation Commission on October 31, 2002. In this petition, the Counties identified the 183A Turnpike Project in Williamson County as the Authority first project.

The CTRMA is governed by a Board of Directors, which is formed by seven members, three are assigned by each County Commissioners Court, while the other member (presiding officer) is appointed by the Governor of Texas. Within the responsibilities of the Board of Directors are directing and controlling the affairs of the CTRMA, the establishment of policies that direct operational management and to determine the toll rate escalation percentage.

Toll Rates

The toll rates are subject to an annual adjustment on January 1. The applicable adjustment would be determined on October 1 of the previous year and the increase in the toll rates on all toll facilities will be based on the Toll Rate Escalation Percentage⁶. If the Toll Rate Escalation Percentage is calculated to be less than zero, then the Toll Rate Escalation Percentage shall be deemed to zero. However, the Board of Directors has the right to vote for the modification of the applicable Toll Rate Escalation Percentage.

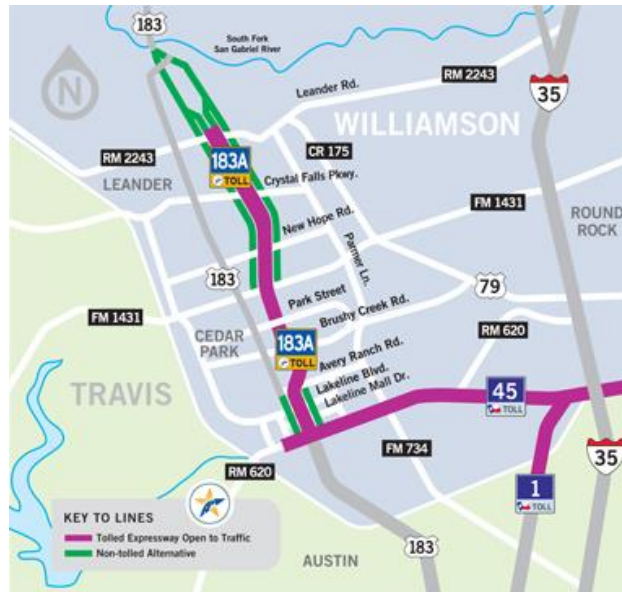
The toll roads operated by the CTRMA have the following payment options: i) electronic payment operating in the State of Texas such as TxTag, TollTag and EZTAG, and ii) pay by mail program. Pay by mail rates have an additional charge of 50.0% compared with the electronic methods and the bills are mailed to costumers. Each bill has a one-dollar fee added on to it, which is used to cover the costs incurred by this collection method. In case that the bill is not paid within the 30 after the delivery, extra fees are applied.

Current Toll Roads

183A Toll

The 183A Toll (183A Turnpike Project) is an 11.6-mile toll road with a six-lane controlled access roadway located in the metropolitan area of the City of Austin, in the northwest of Williamson County. The first section opened in March 2007. Because traffic was much heavier than originally projected, CTRMA expedite a five-mile extension which opened to traffic in April 2012.

⁶ Percentage amount equal to $[(CPI^t - CPI^{t-12})/CPI^{t-12}]$. CPI: Consumer Price Index for All Urban Consumers before seasonal adjustment.



Source: Image taken from the CTRMA website.

290E Toll Road

The 290E Toll road (Manor Expressway) is a 6.2-mile toll road in the Northeast of Austin between the US 183 and the City of Manor. The first phase of the road, which was a 1.5-mile segment of the toll road, opened in 2012. The final phase of the project opened in May 2014. The Manor Expressway includes three tolled lanes and three non-tolled lanes in each direction. It also includes a six-mile shared use paths for pedestrians and bicycle travel.



Source: Image taken from the CTRMA website.

71 Express

The 71 Toll Lane is a 4.0-mile toll road in east Austin from Presidential Blvd to SH 130 and it serves as a major corridor connecting drivers to the Austin-Bergstrom International Airport. It includes a toll lane in each direction as well as new ramps connecting 71 and SH 130, as well as three non-tolled lanes in each direction. The project was incorporated to the CTRMA Turnpike System on February 22th, 2017.

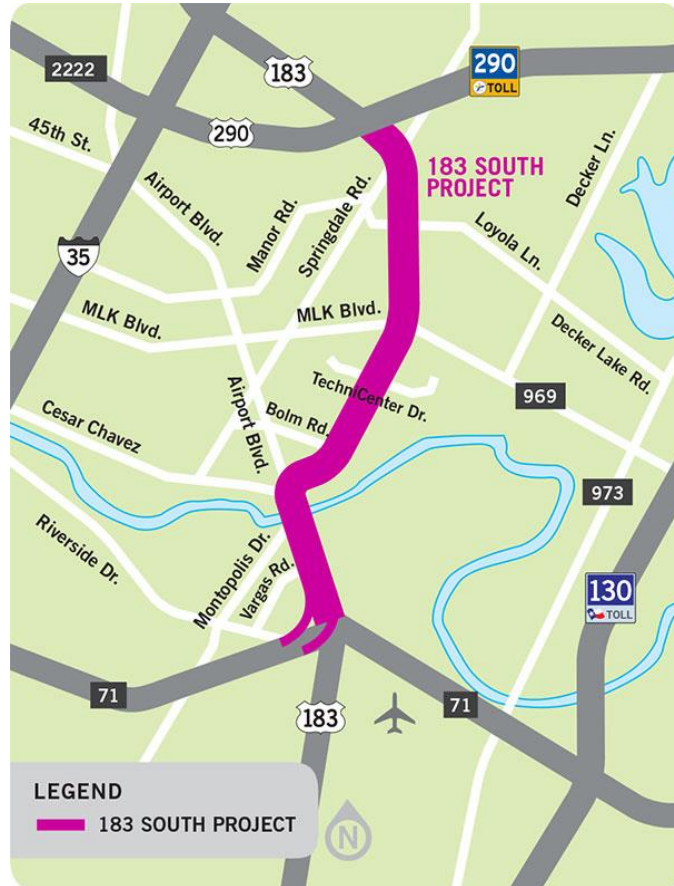


Source: Image taken from the CTRMA website.

Projects

183 South Project

The 183 South is an 8-mile project of US 183 between US 290E and 71 with three tolled lanes in each direction. The construction will take place in two phases. The first phase was completed on July 31, 2019 and the second phase will open to traffic about a year later. The current 183 South is the primary route to and from the Austin-Bergstrom International Airport.



Source: Image taken from the CTRMA website.

290/130 Direct Connectors

The 290/130 Direct Connectors (290 Phase III) refers to the construction of three flyovers to connect the two toll facilities together. One flyover already exists from eastbound US 290 to northbound SH 130.



Source: Image taken from the CTRMA website.

II. Offering Profile

At the date of publication of this report, there are seven Senior Bonds and seven Subordinated Bonds outstanding for a total amount of US\$1.6bn, as shown in Table 1. In November 2018 the CTRMA issued one Senior Lien Revenue Bonds and one Subordinated Lien Revenue Bond Anticipation Notes (BANs), together the Series 2018 Obligations, for US\$44.3m and US\$46.0m, respectively.

The Series 2018 Obligations accrue interest semi-annually, in January and July, at an annual rate of 5.0% for the Series 2018 Senior Lien Bonds and at 4.0% for the Series 2018 Subordinated Lien BANs. The Series 2018 Senior Lien Bonds pay principal annually by a first lien on the Master Trust Indenture on an equal and ratable basis with the Authority's outstanding Senior Lien Revenue Bonds. Principal payments will start in January 2025 and end in January 2048.

The Series 2018 Subordinated Lien BANs will pay principal by a third lien⁷ on the Master Trust Indenture on an equal and ratable basis with the Authority's outstanding Subordinated Lien Revenue Bonds. The payment of the total amount issued will be bullet in January 2022. Also, the Series 2018 Subordinated Lien BANs will not have any right to any funds held in any account in the Subordinate Lien Debt Service Reserve Fund.

⁷ Considering there are no junior lien obligations outstanding at this date, the subordinated lien obligations have a second lien on the Master Trust Indenture.



The Subordinate Lien Revenue Bond, Taxable Series 2019 (the 2019 TIFIA Loan) was closed in March 2019 (considering disbursements should be made before one year after the substantial completion date of 290E Phase III) for a total amount of US\$46.9m with the United States Department of Transportation (USDOT) as the lender and the Central Texas Regional Mobility Authority (the CTRMA or the Authority) as the borrower. The 2019 TIFIA Loan will accrue interest semiannually at a fixed rate of 2.96% and will pay principal semiannually starting in July 2029 and ending in January 2054. Also, the 2019 TIFIA Loan will be used to pay or redeem partially or fully the Series 2018 Subordinated Lien BANs.

Table 11. CTRMA Outstanding Issues

Issue	Issue Date	Par Amount	Outstanding	Principal Pays	Interest Pays	First Coupon Date	Last Coupon Date
Senior Lien Revenue Bonds Series 2010 ¹	01-Mar-10	94,879,710	42,239,710	Annually	Semi-annually	01-Jul-10	01-Jan-40
Senior Lien Revenue Bonds Series 2011 ¹	01-Jun-11	305,929,944	9,999,944	Annually	Semi-annually	01-Jan-12	01-Jan-26
Senior Lien Revenue Refunding Bonds Series 2013A	01-May-13	155,810,000	136,405,000	Annually	Semi-annually	01-Jul-13	01-Jan-43
Senior Lien Revenue Bonds Series 2015A	01-Nov-15	298,790,000	298,790,000	Annually	Semi-annually	01-Jan-16	01-Jan-45
Senior Lien Revenue & Refunding Put Bonds Series 2015B	01-Nov-15	68,785,000	68,785,000	Annually	Semi-annually	01-Jan-16	01-Jan-45
Senior Lien Revenue Refunding Bonds Series 2016	01-Jun-16	358,030,000	358,030,000	Annually	Semi-annually	01-Jul-16	01-Jan-46
Senior Lien Revenue Bonds, Series 2018	01-Nov-18	44,345,000	44,345,000	Annually	Semi-annually	01-Jan-19	01-Jan-48
Subordinate Lien Revenue Refunding Bonds Series 2013	01-May-13	103,960,000	98,295,000	Annually	Semi-annually	01-Jul-13	01-Jan-42
Subordinate Lien Revenue Bonds Series 2015C (TIFIA Loan) ^{1,2}	01-Nov-15	282,220,885	330,899,924	Semi-annually	Semi-annually	01-Jul-24	01-Jul-49
Subordinate Lien Revenue Bonds Series 2015D (TxDOT SHF Loan) ^{1,2}	01-Nov-15	30,000,000	34,369,185	Annually	Semi-annually	01-Jul-20	01-Jul-49
Subordinate Lien Revenue Bonds Series 2015E (TxDOT SIB Loan) ^{1,2}	01-Nov-15	30,000,000	34,369,185	Annually	Semi-annually	01-Jul-20	01-Jul-49
Subordinate Lien Revenue Refunding Bonds Series 2016	01-Aug-16	74,690,000	73,905,000	Annually	Semi-annually	01-Jan-17	01-Jan-41
Subordinate Lien Revenue Bond Anticipation Notes, Series 2018	01-Nov-18	46,020,000	46,020,000	Bullet in 2022	Semi-annually	01-Jan-19	01-Jan-22
Subordinate Lien Revenue Bond, Taxable Series 2019 (2019 TIFIA Loan)	01-Mar-19	46,940,400	-	Semi-annually	Semi-annually	01-Jan-25	01-Jan-54

Source: HR Ratings with information from Central Texas Regional Mobility Authority and Municipal Advisory Council of Texas. (1) Includes capitalized interest. (2) Assumes an estimated principal draw schedule that is subject to change.

Debt Service Reserve Funds

According to the Master Trust Indenture and as ratified in the corresponding Supplemental Indentures, the Senior Lien Debt Service Reserve Fund must keep the amounts sufficient so as to maintain the Senior Lien Debt Service Reserve Requirement, which is an amount equal to the least of: (i) the maximum annual debt service on all outstanding Senior Bonds, (ii) 1.25 times the average annual debt service on all outstanding Senior Bonds, or (iii) 10.0% of the aggregate amount of the Outstanding Senior Bonds, as determined on the date each Series of Senior Bonds was issued.

Regarding the Subordinated Bonds, the Debt Service Reserve Requirement for the Bond Series 2013 and 2016 follows the same rule as that for the Senior Lien Debt Service Reserve Requirement but based on the debt service of each individual series. Whereas the requirement for the TIFIA, SHF and SIB Loans equals the maximum annual debt service of each of the loans.

Flow of Funds

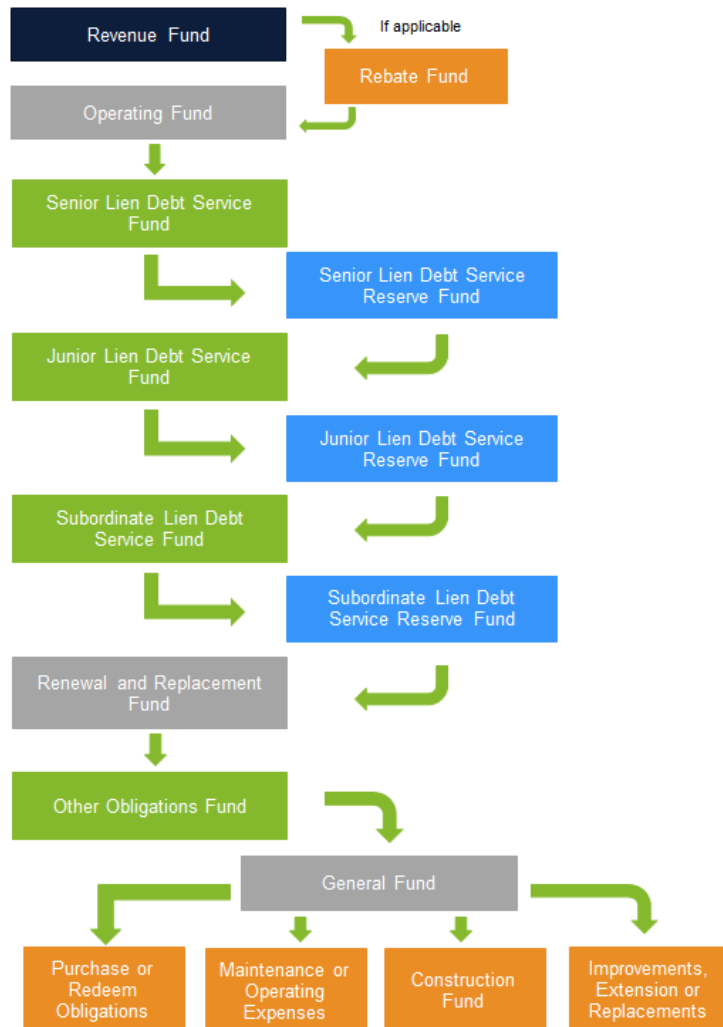
All Revenues obtained from the operation of the System shall be deposited in the Revenue Fund and shall be deposited in the funds and accounts of the trust in the order shown in Figure 1.

The Revenues shall be firstly deposited in the Rebate Fund as it may be authorized or required by any Supplemental Indenture, followed by an amount to the Operating Fund

sufficient to make the balance equal to 1/6 of the Operating and Maintenance Expenses for such Fiscal Year.

In the case of the Senior Lien Debt Service Fund, Junior Lien Debt Service Fund, Subordinate Lien Debt Service Fund and Other Obligations Fund, an amount equal to the sum of the following: (i) 1/6 of the interest coming due on the next semi-annual interest payment date that bear interest semi-annually, (ii) the amount of interest next coming due that bear payable monthly interest, (iii) the amount of interest accruing in such month that bears interest payable on other than a monthly basis (other than Capital Appreciation Bonds), (iv) 1/12 of the principal amount or Maturity amount that will mature and become payable on the next annual maturity date, (v) 1/12 of the principal amount or Maturity amount subject to mandatory sinking fund redemption on the next annual maturity date, and (vi) the amount payable by the Authority under a Swap Agreement or Credit Facility.

Figure 7. Flow of Funds



Source: HR Ratings with information of the Master Indenture.



III. Master Trust Indenture

The Master Trust Indenture was celebrated on February 1, 2005 between The Central Texas Regional Mobility Authority and JP Morgan Chase Bank, National Association, as the Trustee. Currently, Regions Bank, acts as a Trustee, as a successor in trust of JP Morgan Chase Bank.

Under the Master Trust Indenture, the CTRMA grant, bargain, convey, assign and pledge to the Trustee all Revenues, all resources including investment earnings deposited into accounts or fund in the Trust.

Funds

Revenue Fund

All revenues shall be deposited as received by the CTRMA into Revenue Fund. The revenues in the fund shall be deposited or credited in the Fund and Accounts on the fifteenth day of each month.

Rebate Fund

The Rebate Fund does not constitute part of the Trust Estate. The Trustee shall withdraw from the Rebate Fund and pay to the United States of America the balance of the fund as specified in any applicable supplemental indenture.

Operating Fund

All funds in the Operating Fund shall be held separate and apart from the CTRMA's other funds and accounts until applied. Amounts shall be applied to pay operating expenses and maintenance expenses.

Debt Service Funds

Created for the Senior, Junior and Subordinated Obligations. According to the flow of fund established in the Master Indenture monthly provisions shall be made in order to meet with the interest and capital payment. Additionally, complementary accounts in each of the Debt Service Funds could be created to include drawings on credit facilities and payments to the swap agreements counterparties.

Debt Service Reserve Funds

Created for the Senior, Junior and Subordinated Obligations. Money held in these funds shall, except as otherwise provided in a supplemental indenture, be used in case that the resources in the corresponding Debt Service Fund is not sufficient to meet with the interest or capital payments. In case that the amount in any Debt Service Reserve Fund is less that the required amount, the Trustee shall make the monthly deposits in order to restore such deficiencies within 18 months.

Renewal and Replacement Fund

Resources in the fund shall be disbursed only for paying the following cost: i) unusual or extraordinary maintenance or repairs, including major items of equipment; ii) repairs of replacements resulting from an emergency caused by some extraordinary occurrence; and iii) paying of the cost of any capital improvement.

Other Obligations Fund

The Other Obligations debt service shall be paid with the money available in this fund. An additional account may be created for any Additional Other Obligation.



General Fund

Money available in this fund shall be used by the Trustee as mentioned in the Senior, Junior and Subordinate Reserve Fund, the Other Obligations Fund and to restore deficiencies in any funds or accounts under the indenture. After meeting those requirements, money available in the General Fund could be applied to the following, without any expense having priority over any of the others: i) to purchase or redeem Senior, Junior or Subordinated Bonds, ii) Maintenance and Operating Expenses, iii) Construction Fund and iv) for any other lawful purpose according to the Act.

Construction Fund

The amounts deposited in this fund shall be specified in a Supplemental Indenture. A special account shall be created for each Project and payments or reimbursement of payments of costs of any Project shall be disbursed within two business days after receipt by the Trustee. The CTRMA covenants that during the construction of any project, at least quarterly, it will cause the General Engineering Consulting to prepare a progress report including the date it will be opened for traffic, the date on which construction will be completed, the cost and the amounts required each six months during the remaining period.

Issuance of Additional Obligations

The Authority reserves the right to issue Additional Senior, Junior or Subordinated Obligations to finance the costs of improvements, extensions or enlargements of the System. All the Additional Obligations must fulfill, among others, with the following:

- A counsel's opinion.
- Letter of Instructions as to the authentication and delivery of such obligations.
- A certified copy of the resolution of the Board of Directors of the Authority authorizing the issuances of such Obligations.
- A copy of the applicable Supplemental Indenture, according to the specifications mentioned on the Indenture.
- Amounts required by the applicable Supplemental Indenture to be deposited in the Funds created pursuant to the respective Indenture.
- A Letter of Instructions as to the disposition and investment of the proceeds of such Obligations and related amounts.
- If required, the approving opinion of the Attorney General of the State to the effect that the Obligations have been issued in accordance with law, or a judgement of a district court of the State validating the issuance of Obligations.
- Such further documents and moneys as are required by the provisions of any Indenture.

In case that the long-term obligations are being incurred solely for the purpose of refunding, repurchase or refinancing any outstanding long term obligation, the Trustee should be delivered a certificate of an authorized representative of the Authority certifying the average annual debt service on all obligations prior to the issuance of the proposed long term obligations is greater than the average annual debt service on all obligations after the issuances of such proposed obligations.

In other case, the following should be delivered to the Trustee:

- 1) A report of the traffic consultant to the effect that the revenues during the preceding annual period ending not more than 90 days prior to the date of delivery of the



proposed additional obligations, after the payment of all operating expenses for such annual period, were sufficient to satisfy the Rate Covenant.

- 2) A report of the traffic consultant to the effect that the projected revenues for each fiscal year over the term of the proposed additional obligations, less the projected operating expenses for each year to be paid from revenues is expected to produce the following projected debt service coverage ratio:
 - a. For Additional Senior Bonds, (i) 1.40 with respect to Senior Bonds, (ii) 1.20 with respect to Senior Bonds and Junior Lien Obligations, (iii) 1.20 with respect to Senior Bonds, Junior Lien Obligations and Subordinated Bonds and (iv) 1.10 with respect to all Obligations.
 - b. For Additional Junior Lien Obligations, (i) 1.20 with respect to Senior Bonds and Junior Lien Obligations, (ii) 1.20 with respect to Senior Bonds, Junior Lien Obligations and Subordinated Bonds and (iii) 1.10 with respect to all Obligations.
 - c. For Additional Subordinated Bonds, (i) 1.20 with respect to Senior Bonds, Junior Lien Obligations and Subordinated Bonds and (ii) 1.10 with respect to all Obligations.

Particular Covenants of the Authority and Rate Covenant

The CTRMA covenants and agrees with the Trustee and the Holders of Obligations, among others, the following:

- The Authority shall duty and punctually pay or cause to be paid, but solely from the Trust Estate including the Revenue, the proceeds of the obligations, other funds pledged therefor by the Indenture, the principal amount of maturity amount, or redemption price and interests on every obligation.
- The Authority shall not directly or indirectly extend or assent to the extension of the time for payment of the principal amount or maturity amount.
- The Authority covenants than on or before June 30 in each Fiscal Year it will adopt an Annual Operating Budget and Annual Maintenance Budget for the System for the following year.

Additionally, the Authority covenants that it shall always establish tolls and other charges to produce Revenues, in an amount at least equal to the greater of:

- 1) 125.0% of the Annual Debt Service in such Fiscal Year on all Outstanding Senior Bonds.
- 2) 120.0% of the Annual Debt Service in such Fiscal Year on all Outstanding Senior Bonds and Junior Lien Obligations.
- 3) 110.0% of the Annual Debt Service in such Fiscal Year on all Outstanding Senior Bonds, Junior Lien Obligations and Subordinated Bonds.
- 4) 100.0% of the Annual Debt Service in such Fiscal Year on all Obligations plus the amounts to be deposited into the debt reserve funds.

Prior to adopting any change in its Toll rate schedule, the Authority shall obtain and file with Trustee a certificate by the Traffic Consultant stating either:

- (i) In their opinion, that if such proposed toll rate schedule had been in effect during the preceding annual period and taking into effect the Revenues anticipated to be received in such annual period, as evidenced by a



- certificate of an Authorized Representative, it would not have caused a decrease in the Revenues for said preceding annual period.
- (ii) In their opinion, that the adoption of such proposed toll rate schedule will not adversely affect the ability of the Authority to comply with the preceding percentages.

Events of Default

The occurrence and continuation of the following events shall constitute an event of default:

- Failure to pay principal or interest of any obligations and failure to purchase and variable rate obligations.
- The occurrence of an event of default under a Credit Facility⁸, Senior, Junior or Subordinate Debt Service Reserve Fund Security, Swap Agreement or Reimbursement Agreement.
- Judgement for the payment of money rendered against the Authority if such judgement is under any circumstances payable from revenues and is in an amount that its payment, in the opinion of the Trustee, have a materially adverse effect upon the financial condition of the CTRMA turnpike system.
- The occurrence of a Bankruptcy Related Event that shall not be cured, vacated, discharged or stayed within 60 days after the occurrence.⁹
- Failure of the Authority to duly and punctually perform any other of the covenants, conditions, agreements and provisions contained in any obligations, in the Master Trust Indenture or any supplemental indenture and the continuation of such failure for sixty days after written notice.

⁸ Credit Facility: Any letter of credit, line of credit, standby letter of credit or agreement to purchase a debt obligation or any similar extension of credit, credit enhancement or liquidity support obtained by the Authority.

⁹ Bankruptcy Related Event: i) the application by or consent of the Authority to the appointment of a receiver, trustee, liquidator or custodian or the like is appointed for the Authority, ii) the Authority becomes unable to pay its debt generally as they become due, iii) the authority is adjudicated a bankrupt or insolvent, or iv) the Authority commences a voluntary proceeding under the Bankruptcy Law.



Glossary

Stress: The applied stress level refers to the maximum stress that the bond could bear and still complying with the debt service payments.

ASR: Annualized Stress Rate:

$$ASR = \left| \left(\frac{\sum_{t=1}^n \text{Stress Real Revenue}_t}{\sum_{t=1}^n \text{Base Real Revenue}_t} \right)^{\frac{12}{n}} - 1 \right| = \left| \left(\frac{\text{Stress Accumulated Real Revenue}}{\text{Base Accumulated Real Revenue}} \right)^{\frac{12}{n}} - 1 \right|$$

Where n is the number of months used for the analysis.

AADT: Annual Average Daily Transactions (Total Annual Transactions / Operated Days).

ADT: Average Daily Transactions (Total Transactions in Period / Operated Days in Period).

AADR: Annual Average Daily Revenue (Total Annual Revenue / Operated Days).

ADR: Average Daily Revenue (Total Revenue in Period / Operated Days in Period).

CAGR: Compound Annual Growth Rate.

WATR: Weighted Average Toll Rate (Total Revenue / Total Transactions).



HR Ratings Management Contacts

Management

Chairman of the Board

Alberto I. Ramos +52 55 1500 3130
alberto.ramos@hrratings.com

Chief Executive Officer

Fernando Montes de Oca +52 55 1500 3130
fernando.montesdeoca@hrratings.com

Vice President

Anibal Habeica +52 55 1500 3130
anibal.habeica@hrratings.com

Analysis

Chief Credit Officer

Felix Boni +52 55 1500 3133
felix.boni@hrratings.com

Public Finance / Infrastructure

Ricardo Gallegos +52 55 1500 3139
ricardo.gallegos@hrratings.com

Roberto Ballinez +52 55 1500 3143
roberto.ballinez@hrratings.com

Financial Institutions / ABS

Fernando Sandoval +52 55 1253 6546
fernando.sandoval@hrratings.com

Deputy Chief Credit Officer

Pedro Latapí +52 55 8647 3845
pedro.latapi@hrratings.com

Corporates / ABS

Hatsutaro Takahashi +52 55 1500 3146
hatsutaro.takahashi@hrratings.com

José Luis Cano +52 55 1500 0763
joseluis.cano@hrratings.com

Methodologies

Alfonso Sales +52 55 1500 3140
alfonso.sales@hrratings.com

Regulation

Chief Risk Officer

Rogelio Argüelles +52 181 8187 9309
rogelio.arguelles@hrratings.com

Head Compliance Officer

Rafael Colado +52 55 1500 3817
rafael.colado@hrratings.com

Business Development

Business Development

Francisco Valle +52 55 1500 3134
francisco.valle@hrratings.com



A NRSRO Rating*

Mexico: Avenida Prolongación Paseo de la Reforma #1015 torre A, piso 3, Col. Santa Fe, México, D.F., CP 01210, Tel 52 (55) 1500 3130.
United States: One World Trade Center, Suite 8500, New York, New York, ZIP Code 10007, Tel +1 (212) 220 5735.

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Methodology for Infrastructure: Rating for Debt backed by Revenue from the Operation of Highways, Tunnels and Bridges, November 6, 2015.

Technical note for the incorporation of the risk regarding construction over the debt backed by infrastructure projects and future flows, April 2017.

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Complementary information

Table with 2 columns: Question/Category and Answer. Rows include: Previous Rating, Date of the last Rating Action, Period of the financial information used by HR Ratings for the assignment of the current rating, Main sources of information used, Ratings assigned by other rating agencies, and HR Ratings considered at the moment of assigning or reviewing the rating.

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**Credit
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**Central Texas Regional Mobility Authority
Senior Lien Revenue Bonds
Subordinate Lien Revenue Bonds**

**HR A- (G)
HR BBB+ (G)**

**Infrastructure
September 24, 2019**

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