

**GENERAL MEETING OF THE BOARD OF DIRECTORS  
OF THE  
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**

**RESOLUTION NO. 19-004**

**APPROVE AMENDMENT NO. 1 TO THE AGREEMENT FOR THE PAYOFF  
AND TERMINATION OF THE PASS-THROUGH TOLL AGREEMENT FOR  
THE 183A INTERSECTION PROJECT**

WHEREAS, on or about January 10, 2012, the Mobility Authority and the Texas Department of Transportation ("TxDOT") executed that certain "Pass-Through Agreement for Payment of Pass-Through Tolls by the Department" (the "Pass-Through Agreement") providing for the reimbursement of certain costs related to the 183/183A Intersection Project; and

WHEREAS; pursuant to the Pass-Through Agreement TxDOT was to make periodic payments to the Mobility Authority totaling \$1,500,000.00 over a period of several years; and

WHEREAS, by Resolution No. 18-037 dated July 25, 2018, the Board authorized the Executive Director to execute the Payoff and Termination of Pass-Through Agreement for Payment of Pass-Through Tolls by the Department in order to allow TxDOT to pay the entire outstanding balance due as a lump sum at a 6% discount factor; and

WHEREAS, TxDOT's remaining obligation to the Mobility Authority under the Pass-Through Agreement is currently \$1,650,000; and

WHEREAS, the Chief Financial Officer and TxDOT have negotiated Amendment No. 1 to the Payoff and Termination of Pass-Through Agreement for Payment of Pass-Through Tolls by the Department which is attached hereto as Exhibit A, in order to account for the increased payoff amount due based on the current outstanding balance; and


WHEREAS, applying the agreed upon discount rate to the current remaining balance owed results in a net present value payoff amount of \$1,531,854.57; and

NOW THEREFORE, BE IT RESOLVED that accepting an early payoff of amounts owed under the Pass-Through Agreement under terms described above is hereby approved; and

BE IT FURTHER RESOLVED that the Executive Director or Chief Financial Officer may finalize and execute Amendment No. 1 to the Payoff and Termination of Pass-Through Agreement for Payment of Pass-Through Tolls by the Department in the form or in substantially the same form as is attached hereto as Exhibit A.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 27<sup>th</sup> day of February 2019.

Submitted and reviewed by:

  
Geoffrey Petrov, General Counsel

Approved:

  
Ray A. Wilkerson  
Chairman, Board of Directors

**Exhibit A**

STATE OF TEXAS §

COUNTY OF TRAVIS §

**PASS-THROUGH AGREEMENT FOR PAYMENT OF PASS-THROUGH TOLLS BY  
THE DEPARTMENT**

**AMENDMENT # 1**

**THIS AMENDMENT** is made by and between the State of Texas, acting through the Texas Department of Transportation (the “Department”), and Central Texas Regional Mobility Authority (CTRMA) (the “Developer”), and becomes effective when fully executed by both parties.

**BACKGROUND**

The Department and the Developer executed a “Pass-Through Agreement for Payment of Pass-Through Tolls by the Department” on January 19, 2012, Contract No. PT2011-001-01 (“Pass-Through Agreement”), under which the Department is obligated to make certain pass-through payments to the Developer as reimbursement of the costs of constructing improvements to the state highway system at the intersection of US 183/183A (the “Project”).

The Project has been completed and is open to traffic, and under Section 12 of the Pass-Through Agreement, the Department is obligated to pay to the Developer no less than \$75,000 and no more than \$150,000 annually.

Under Section 15 of the Pass-Through Agreement, the Department and the Developer may terminate the Pass-Through Agreement by mutual consent.

The Department and the Developer have determined that it is in the best interest of the parties for the Department to provide a lump sum payment to the Developer in satisfaction of the Department’s obligations under the Pass-Through Agreement and to terminate the Pass-Through Agreement.

Pursuant to Minute Order No.115265 dated July 26, 2018, the Texas Transportation Commission approved the payoff of the Department’s obligations under the Pass-Through Agreement in a lump sum payment at a discounted rate of 6% per annum net present value in satisfaction of the Department’s obligations under the Pass-Through Agreement and termination of the Pass-Through Agreement.

Pursuant to Resolution \_\_\_\_ dated\_\_\_\_\_, the Developer approved the payoff of the Department’s obligations under the Pass-Through Agreement through the acceptance of a lump sum payment at a discounted rate of 6% per annum net present value in satisfaction of the Department’s obligations under the Pass-Through Agreement and

termination of the Pass-Through Agreement. This Resolution is attached to and made part of this Amendment as Attachment G-1.

## **AMENDMENT**

The Department and the Developer hereby agree as follows:

### **1. Payoff**

The Department shall pay the Developer the amount of \$1,531,854.57 (the "Payoff Amount"). This amount is the total cumulative amount of the remaining pass-through payments owed by the Department to the Developer under the Pass-Through Agreement at the maximum amount per year allowed in Section 12 of the Pass-Through Agreement, with each maximum payment discounted at six (6) percent per annum on an actual/actual basis as shown in Attachment I. Attachment I is attached and made part of this Amendment.

- A.** The Developer will execute and deliver to the Department a receipt and such additional receipts and release documents and instruments as the Department may reasonably request relating to the payoff and termination of the Pass-Through Toll Agreement.
- B.** The Developer warrants that it shall use the Department's lump-sum payment in conformance with the requirements of any obligations and applicable law.

### **2. Termination**

Upon delivery of the Payoff Amount from the Department to the Developer all of the Department obligations shall be satisfied in full and the Pass-Through Agreement shall be terminated.

### **3. Survival of Terms and Conditions**

Termination of the Pass-Through Agreement, as set forth in this Amendment, shall not release either party from any liabilities or obligations set forth in the Pass-Through Agreement that the parties have expressly agreed shall survive any such termination, if any, or by their nature, would be intended to be applicable following any such termination. The parties expressly agree that the following terms and conditions survive the termination of the Pass-Through Agreement:

- 1. Section 18. Development Contracts, Subcontracts, and Assignment. Subsections(c) and (d);
- 2. Section 19. Ownership of Property; and
- 3. Section 25. Hold Harmless;
- 4. Section 32. Audit. Subsection (c); and
- 5. Section 33. Retention and Inspection of Books and Records.

**4. Signatory Warranty**

Each signatory warrants that the signatory has necessary authority to execute this Amendment on behalf of the entity represented.

**THIS AMENDMENT IS EXECUTED** by the Department and the Developer in duplicate.

**THE DEPARTMENT**

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**THE DEVELOPER**

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Signature

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Signature

Marc Williams  
Deputy Executive Director

Bill Chapman  
Chief Financial Officer

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Date

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Date

Contract No. PT2011-001-01  
CSJ No.0151-04-066  
Federal Highway Administration  
CFDA No.:20.205  
Not Research and Development

Attachment G-1

Attachment I

Central Texas RMA  
 NPV Calculation for PT Agreement

		1,650,000.00	Discount
			6%
Proposed NPV		<b>\$1,531,855</b>	
<u>N</u>	Remaining		NPV
0	2018	-900,000.00	900,000.00
1	2019	-150,000.00	141,509.43
2	2020	-150,000.00	133,499.47
3	2021	-150,000.00	125,942.89
4	2022	-150,000.00	118,814.05
5	2023	-150,000.00	112,088.73
Total			NPV= 1,531,854.57

**GENERAL MEETING OF THE BOARD OF DIRECTORS  
OF THE  
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**

**RESOLUTION NO. 19-005**

**ACCEPT THE FINANCIAL STATEMENTS FOR JANUARY 2019**

WHEREAS, the Central Texas Regional Mobility Authority (Mobility Authority) is empowered to procure such goods and services as it deems necessary to assist with its operations and to study and develop potential transportation projects, and is responsible to insure accurate financial records are maintained using sound and acceptable financial practices; and

WHEREAS, close scrutiny of the Mobility Authority's expenditures for goods and services, including those related to project development, as well as close scrutiny of the Mobility Authority's financial condition and records is the responsibility of the Board and its designees through procedures the Board may implement from time to time; and


WHEREAS, the Board has adopted policies and procedures intended to provide strong fiscal oversight and which authorize the Executive Director, working with the Mobility Authority's Chief Financial Officer, to review invoices, approve disbursements, and prepare and maintain accurate financial records and reports;

WHEREAS, the Executive Director, working with the Chief Financial Officer, has reviewed and authorized the disbursements necessary for the month of January 2019, and has caused financial statements to be prepared and attached to this resolution as Exhibit A; and

NOW THEREFORE, BE IT RESOLVED, that the Board of Directors accepts the financial statements for January 2019, attached hereto as Exhibit A.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 27<sup>th</sup> day of February 2019.

Submitted and reviewed by:

  
\_\_\_\_\_  
Geoffrey Petro, General Counsel

Approved:

  
\_\_\_\_\_  
Ray A. Wilkerson  
Chairman, Board of Directors



**Exhibit A**

**Central Texas Regional Mobility Authority**  
**Income Statement**  
**For the Period Ending January 31, 2019**

		Budget	Actual Year	Percent of	Actual Prior
		Amount FY	to Date	Budget	Year to Date
		2019			
<b>REVENUE</b>					
<b>Operating Revenue</b>					
Toll Revenue - Tags		73,700,000	46,504,156	63.10%	36,077,168
Video Tolls		17,587,500	10,587,303	60.20%	7,717,640
Fee Revenue		6,762,500	3,401,300	50.30%	2,901,415
	<b>Total Operating Revenue</b>	<b>98,050,000</b>	<b>60,492,759</b>	<b>61.70%</b>	<b>46,696,224</b>
<b>Other Revenue</b>					
Interest Income		950,000	2,809,073	295.69%	1,257,975
Grant Revenue		-	868,585	-	14,629,885
Misc Revenue		2,000	37,200	1860.00%	1,350
	<b>Total Other Revenue</b>	<b>952,000</b>	<b>3,714,858</b>	<b>390.22%</b>	<b>15,889,210</b>
<b>TOTAL REVENUE</b>		<b>\$99,002,000</b>	<b>\$64,207,616</b>	<b>64.85%</b>	<b>62,585,434</b>

**EXPENSES**

<b>Salaries and Benefits</b>					
Salary Expense-Regular		4,138,603	2,252,243	54.42%	2,005,115
Salary Reserve		80,000	-	-	-
TCDRS		579,405	261,783	45.18%	268,568
FICA		190,792	73,189	38.36%	72,383
FICA MED		65,880	28,942	43.93%	28,903
Health Insurance Expense		391,184	213,698	54.63%	194,416
Life Insurance Expense		11,165	5,178	46.37%	5,667
Auto Allowance Expense		10,200	5,525	54.17%	5,950
Other Benefits		136,476	83,166	60.94%	84,537
Unemployment Taxes		4,212	4,091	97.12%	204
	<b>Total Salaries and Benefits</b>	<b>5,607,917</b>	<b>2,927,816</b>	<b>52.21%</b>	<b>2,665,741</b>

**Central Texas Regional Mobility Authority**  
**Income Statement**  
**For the Period Ending January 31, 2019**

	Budget			
	Amount FY	Actual Year	Percent of	Actual Prior
	2019	to Date	Budget	Year to Date
<b>Administrative</b>				
<b>Administrative and Office Expenses</b>				
Accounting	10,000	4,925	49.25%	4,530
Auditing	125,000	74,571	59.66%	29,500
Human Resources	35,000	3,711	10.60%	24,773
Legal	-	-	-	28,433
IT Services	174,000	62,245	35.77%	70,888
Internet	4,550	3,236	71.12%	2,182
Software Licenses	85,700	32,156	37.52%	11,688
Cell Phones	16,100	8,945	55.56%	8,024
Local Telephone Service	12,000	5,116	42.63%	8,453
Overnight Delivery Services	500	61	12.18%	54
Local Delivery Services	600	62	10.41%	-
Copy Machine	24,000	8,593	35.80%	8,299
Repair & Maintenance-General	15,500	2,361	15.23%	704
Community Meeting/ Events	15,000	-	-	-
Meeting Expense	16,000	6,353	39.70%	6,072
Public Notices	100	-	-	25
Toll Tag Expense	3,150	1,504	47.74%	1,302
Parking / Local Ride Share	1,800	650	36.09%	367
Mileage Reimbursement	9,900	2,077	20.98%	2,856
Insurance Expense	251,000	111,870	44.57%	98,316
Rent Expense	650,000	311,042	47.85%	303,838
Legal Services	396,500	141,596	35.71%	96,849
<b>Total Administrative and Office Expenses</b>	<b>1,846,400</b>	<b>781,074</b>	<b>42.30%</b>	<b>707,154</b>
<b>Office Supplies</b>				
Books & Publications	5,700	3,112	54.60%	752
Office Supplies	16,000	7,868	49.18%	5,774
Misc Office Equipment	-	4,317	-	-
Computer Supplies	152,550	25,744	16.88%	5,088
Copy Supplies	3,000	1,036	34.55%	964
Other Reports-Printing	8,000	-	-	-
Office Supplies-Printed	2,600	2,526	97.15%	992
Misc Materials & Supplies	750	-	-	-
Postage Expense	800	161	20.11%	239
<b>Total Office Supplies</b>	<b>189,400</b>	<b>44,765</b>	<b>23.64%</b>	<b>13,809</b>

**Central Texas Regional Mobility Authority**  
**Income Statement**  
**For the Period Ending January 31, 2019**

	Budget Amount FY 2019	Actual Year to Date	Percent of Budget	Actual Prior Year to Date
<b>Communications and Public Relations</b>				
Graphic Design Services	55,000	29,424	53.50%	15,000
Website Maintenance	100,300	24,504	24.43%	24,155
Research Services	450,000	(56,385)	-12.53%	89,078
Communications and Marketing	800,000	167,996	21.00%	128,126
Advertising Expense	821,500	158,294	19.27%	109,009
Direct Mail	15,800	-	-	-
Video Production	258,820	8,820	3.41%	8,904
Photography	12,500	4,895	39.16%	5,110
Radio	75,000	930	1.24%	9,346
Other Public Relations	60,000	21,475	35.79%	38,448
Promotional Items	20,000	700	3.50%	-
Displays	5,000	-	-	2,124
Annual Report printing	5,000	3,712	74.25%	-
Direct Mail Printing	5,000	-	-	-
Other Communication Expenses	70,000	1,714	2.45%	13,162
<b>Total Communications and Public Relations</b>	<b>2,753,920</b>	<b>366,081</b>	<b>13.29%</b>	<b>442,462</b>
<b>Employee Development</b>				
Subscriptions	3,050	542	17.75%	816
Agency Memberships	53,500	37,796	70.65%	33,085
Continuing Education	15,500	385	2.48%	694
Professional Development	19,000	7,111	37.43%	4,248
Other Licenses	1,700	243	14.28%	208
Seminars and Conferences	41,000	12,199	29.75%	8,032
Travel	70,000	51,463	73.52%	15,678
<b>Total Employee Development</b>	<b>203,750</b>	<b>109,739</b>	<b>53.86%</b>	<b>62,760</b>
<b>Financing and Banking Fees</b>				
Trustee Fees	45,000	26,075	57.94%	21,525
Bank Fee Expense	6,500	2,334	35.90%	3,123
Continuing Disclosure	15,000	-	-	9,812
Arbitrage Rebate Calculation	13,000	8,395	64.58%	8,355
Rating Agency Expense	30,000	16,000	53.33%	15,500
<b>Total Financing and Banking Fees</b>	<b>109,500</b>	<b>52,804</b>	<b>48.22%</b>	<b>58,315</b>
<b>Total Administrative</b>	<b>5,102,970</b>	<b>1,354,462</b>	<b>26.54%</b>	<b>1,284,500</b>

**Central Texas Regional Mobility Authority**  
**Income Statement**  
**For the Period Ending January 31, 2019**

	Budget Amount FY 2019	Actual Year to Date	Percent of Budget	Actual Prior Year to Date
<b>Operations and Maintenance</b>				
<b>Operations and Maintenance Consulting</b>				
GEC-Trust Indenture Support	169,000	18,434	10.91%	88,271
GEC-Financial Planning Support	51,000	36,581	71.73%	-
GEC-Toll Ops Support	249,786	59,490	23.82%	-
GEC-Roadway Ops Support	1,129,978	212,631	18.82%	361,261
GEC-Technology Support	857,428	412,932	48.16%	-
GEC-Public Information Support	120,000	7,871	6.56%	160,694
GEC-General Support	1,443,568	458,149	31.74%	450,484
General System Consultant	500,000	223,199	44.64%	103,252
Traffic Modeling	590,000	41,030	6.95%	-
Traffic and Revenue Consultant	150,000	44,537	29.69%	67,964
<b>Total Operations and Maintenance Consulting</b>	<b>5,260,760</b>	<b>1,514,854</b>	<b>28.80%</b>	<b>1,231,925</b>
<b>Roadway Operations and Maintenance</b>				
Roadway Maintenance	4,507,900	1,507,161	33.43%	1,563,827
Signal & Illumination Maint	-	-	-	12,554
Maintenance Supplies-Roadway	117,800	18,976	16.11%	45,920
Tools & Equipment Expense	1,000	199	19.91%	301
Gasoline	18,700	8,906	47.62%	7,977
Repair & Maintenance-Vehicles	6,500	2,849	43.83%	3,086
Electricity - Roadways	200,000	83,715	41.86%	80,436
<b>Total Roadway Operations and Maintenance</b>	<b>4,851,900</b>	<b>1,621,806</b>	<b>33.43%</b>	<b>1,714,101</b>
<b>Toll Processing and Collection Expense</b>				
Image Processing	3,200,000	715,093	22.35%	967,310
Tag Collection Fees	6,633,000	3,797,234	57.25%	3,107,563
Court Enforcement Costs	49,080	7,875	16.05%	18,225
DMV Lookup Fees	500	497	99.38%	265
<b>Total Processing and Collection Expense</b>	<b>9,882,580</b>	<b>4,520,698</b>	<b>45.74%</b>	<b>4,093,363</b>

**Central Texas Regional Mobility Authority**  
**Income Statement**  
**For the Period Ending January 31, 2019**

	Budget Amount FY 2019	Actual Year to Date	Percent of Budget	Actual Prior Year to Date
<b>Toll Operations Expense</b>				
Generator Fuel	2,000	641	32.06%	42
Fire and Burglar Alarm	500	247	49.35%	247
Refuse	1,500	718	47.89%	746
Telecommunications	120,000	32,871	27.39%	41,229
Water - Irrigation	10,000	2,361	23.61%	3,197
Electricity	2,500	933	37.31%	817
ETC spare parts expense	50,000	5,573	11.15%	-
Repair & Maintenance Toll Equip	5,000	-	-	-
Law Enforcement	290,000	181,204	62.48%	166,015
ETC Maintenance Contract	1,988,386	1,049,670	52.79%	988,105
ETC Toll Management Center System Operation	360,000	-	-	1,364
ETC Development	1,636,000	49,533	3.03%	-
ETC Testing	100,000	52,536	52.54%	-
<b>Total Toll Operations Expense</b>	<b>4,565,886</b>	<b>1,376,287</b>	<b>30.14%</b>	<b>1,201,762</b>
<b>Total Operations and Maintenance</b>	<b>24,561,126</b>	<b>9,033,645</b>	<b>36.78%</b>	<b>8,241,151</b>
<b>Other Expenses</b>				
<b>Special Projects and Contingencies</b>				
HERO	148,000	-	-	568,423
Special Projects	500,000	38,551	7.71%	-
71 Express Net Revenue Payment	3,635,405	2,290,102	62.99%	2,012,957
Technology Task Force	650,000	82,319	12.66%	-
Other Contractual Svcs	150,000	121,048	80.70%	27,999
Contingency	250,000	-	-	828
<b>Total Special Projects and Contingencies</b>	<b>5,333,405</b>	<b>2,532,019</b>	<b>47.47%</b>	<b>2,610,207</b>

**Central Texas Regional Mobility Authority**  
**Income Statement**  
**For the Period Ending January 31, 2019**

	Budget Amount FY 2019	Actual Year to Date	Percent of Budget	Actual Prior Year to Date
<b>Non Cash Expenses</b>				
Amortization Expense	487,699	257,158	52.73%	296,495
Amort Expense - Refund Savings	1,027,860	607,894	59.14%	603,357
Dep Exp- Furniture & Fixtures	3,014	1,525	50.58%	1,525
Dep Expense - Equipment	15,999	9,333	58.33%	10,090
Dep Expense - Autos & Trucks	37,437	15,538	41.51%	9,727
Dep Expense-Buildng & Toll Fac	176,748	92,793	52.50%	103,195
Dep Expense-Highways & Bridges	22,541,478	12,208,996	54.16%	12,031,078
Dep Expense-Toll Equipment	2,485,026	1,460,610	58.78%	1,436,554
Dep Expense - Signs	326,893	190,104	58.15%	190,104
Dep Expense-Land Improvemts	884,934	516,212	58.33%	516,212
Depreciation Expense-Computers	20,317	6,218	30.60%	9,645
<b>Total Non Cash Expenses</b>	<b>28,007,405</b>	<b>15,366,380</b>	<b>54.87%</b>	<b>15,207,981</b>
<b>Total Other Expenses</b>	<b>33,340,810</b>	<b>17,898,399</b>	<b>53.68%</b>	<b>17,818,188</b>
<b>Non Operating Expenses</b>				
Bond issuance expense	1,413,508	2,387,191	168.88%	132,273
Loan Fee Expense	-	13,500	-	-
Interest Expense	40,371,558	19,514,073	48.34%	18,347,149
CAMPO RIF Payment	2,000,000	2,000,000	100.00%	-
Community Initiatives	275,000	39,692	14.43%	25,000
<b>Total Non Operating Expenses</b>	<b>44,060,066</b>	<b>23,954,457</b>	<b>54.37%</b>	<b>18,504,421</b>
<b>TOTAL EXPENSES</b>	<b>\$112,672,889</b>	<b>\$55,168,778</b>	<b>48.96%</b>	<b>\$48,514,002</b>
<b>Net Income</b>	<b>(\$13,670,889)</b>	<b>\$9,038,838</b>		<b>14,071,432</b>

**Central Texas Regional Mobility Authority**  
**Balance Sheet**  
**as of January 31, 2019**

	as of 01/31/2019	as of 01/31/2018
<b>ASSETS</b>		
<b>Current Assets</b>		
<b>Cash</b>		
Regions Operating Account	\$ 1,293,517	\$ 683,234
Cash in TexStar	231,623	309,616
Regions Payroll Account	258,451	186,589
<b>Restricted Cash</b>		
Goldman Sachs FSGF 465	334,161,961	87,599,277
Restricted Cash - TexSTAR	149,542,806	186,115,341
Overpayments account	310,307	186,442
<b>Total Cash and Cash Equivalents</b>	<u>485,798,664</u>	<u>275,080,498</u>
<b>Accounts Receivable</b>		
Accounts Receivable	1,141,083	-
Due From Other Agencies	24,180	7,519
Due From TTA	855,667	1,115,405
Due From NTTA	708,343	1,058,158
Due From HCTRA	1,888,740	2,602,632
Due From TxDOT	1,758,070	4,846,817
Interest Receivable	513,221	282,618
<b>Total Receivables</b>	<u>6,889,305</u>	<u>9,913,149</u>
<b>Short Term Investments</b>		
Treasuries	19,956,627	-
Agencies	79,730,708	106,933,661
<b>Total Short Term Investments</b>	<u>99,687,335</u>	<u>106,933,661</u>
<b>Total Current Assets</b>	<u>592,375,304</u>	<u>391,927,307</u>
<b>Total Construction in Progress</b>	696,186,912	685,770,499
<b>Fixed Assets (Net of Depreciation and Amortization)</b>		
Computers	23,916	35,481
Computer Software	762,956	1,084,811
Furniture and Fixtures	11,108	13,722
Equipment	10,039	26,038
Autos and Trucks	43,979	70,617
Buildings and Toll Facilities	5,020,907	5,187,344
Highways and Bridges	885,577,370	752,488,580
Toll Equipment	17,241,877	14,553,441
Signs	10,446,365	10,740,358
Land Improvements	9,222,793	10,107,727
Right of way	88,149,606	88,149,606
Leasehold Improvements	120,640	136,247
<b>Total Fixed Assets</b>	<u>1,016,631,556</u>	<u>882,593,972</u>
<b>Other Assets</b>		
Intangible Assets-Net	102,862,583	103,917,560
2005 Bond Insurance Costs	4,163,411	4,376,919
Prepaid Insurance	276,485	122,320
Prepaid Expenses	275	-
Deferred Outflows (pension related)	290,396	711,563
Pension Asset	826,397	355,139
<b>Total Other Assets</b>	<u>108,419,547</u>	<u>109,483,501</u>
<b>Total Assets</b>	<u><u>\$ 2,413,613,319</u></u>	<u><u>\$ 2,069,775,279</u></u>



**Central Texas Regional Mobility Authority**  
**Balance Sheet**  
as of January 31, 2019

	as of 01/31/2019	as of 01/31/2018
<b>LIABILITIES</b>		
<b>Current Liabilities</b>		
Accounts Payable	\$ 479,066	\$ 1,408,948
Construction Payable	1,583,265	-
Overpayments	313,297	189,165
Interest Payable	12,120,067	4,302,911
Deferred Compensation Payable	(29,395)	(10,466)
TCDRS Payable	63,309	60,203
Medical Reimbursement Payable	(4,487)	(2,113)
Due to other Agencies	4,054,108	2,007,476
Due to TTA	1,956,362	497,014
Due to NTTA	315,412	332,891
Due to HCTRA	132,140	363,520
Due to Other Entities	690,395	4,477,702
71E TxDOT Obligation - ST	3,860,267	2,663,955
<b>Total Current Liabilities</b>	<b>25,533,805</b>	<b>16,291,205</b>
<b>Long Term Liabilities</b>		
Compensated Absences	541,425	182,441
Deferred Inflows (pension related)	278,184	286,449
<b>Long Term Payables</b>	<b>819,609</b>	<b>468,891</b>
<b>Bonds Payable</b>		
<b>Senior Lien Revenue Bonds:</b>		
Senior Lien Revenue Bonds 2010	75,144,488	71,575,367
Senior Lien Revenue Bonds 2011	15,988,629	15,031,856
Senior Refunding Bonds 2013	136,405,000	139,885,000
Senior Lien Revenue Bonds 2015	298,790,000	298,790,000
Senior Lien Put Bnd 2015	68,785,000	68,785,000
Senior Lien Refunding Revenue Bonds 2016	358,030,000	358,030,000
Senior Lien Revenue Bonds 2018	44,345,000	-
Sn Lien Rev Bnd Prem/Disc 2013	7,024,257	8,880,807
Sn Lien Revenue Bnd Prem 2015	20,079,387	21,275,892
Sn Lien Put Bnd Prem 2015	2,639,230	4,502,534
Senior lien premium 2016 revenue bonds	49,177,489	53,497,738
Sn Lien Revenue Bond Premium 2018	4,060,582	-
<b>Total Senior Lien Revenue Bonds</b>	<b>1,080,469,064</b>	<b>1,040,254,194</b>
<b>Sub Lien Revenue Bonds:</b>		
Sub Lien Refunding Bonds 2013	98,295,000	100,530,000
Sub Lien Refunding Bonds 2016	73,905,000	74,305,000
Subordinated Lien BANs 2018	46,020,000	-
Sub Refunding 2013 Prem/Disc	1,575,642	2,037,322
Sub Refunding 2016 Prem/Disc	8,652,831	9,514,935
Sub Lien BANs 2018 Premium	1,543,305	-
<b>Total Sub Lien Revenue Bonds</b>	<b>229,991,778</b>	<b>186,387,257</b>
<b>Other Obligations</b>		
TIFIA note 2015	227,233,126	122,861
SIB loan 2015	32,495,047	31,233,234
State Highway Fund Loan 2015	32,495,077	31,233,264
State 455W Loan	55,000,000	22,080,000
71E TxDOT Obligation - LT	62,332,058	65,000,000
Regions 2017 MoPAC Note	17,000,000	17,000,000
<b>Total Other Obligations</b>	<b>426,555,308</b>	<b>166,669,359</b>
<b>Total Long Term Liabilities</b>	<b>1,737,835,759</b>	<b>1,393,779,701</b>
<b>Total Liabilities</b>	<b>1,763,369,564</b>	<b>1,410,070,906</b>

**Central Texas Regional Mobility Authority**  
**Balance Sheet**  
**as of January 31, 2019**

	as of 01/31/2019	as of 01/31/2018
	<b>NET ASSETS</b>	
Contributed Capital	121,202,391	136,725,550
Net Assets Beginning	520,050,851	508,907,391
Current Year Operations	8,990,513	14,071,432
<b>Total Net Assets</b>	<b>650,243,755</b>	<b>659,704,373</b>
<b>Total Liabilities and Net Assets</b>	<b>\$ 2,413,613,319</b>	<b>\$ 2,069,775,279</b>

**Central Texas Regional Mobility Authority**  
**Statement of Cash Flow**  
**as of January 31, 2019**

**Cash flows from operating activities:**

Receipts from toll fees	\$	59,493,940
Receipts from interest income		(320,737)
Payments to vendors		(13,857,944)
Payments to employees		(2,736,055)
Net cash flows provided by (used in) operating activities		42,616,404

**Cash flows from capital and related financing activities:**

Proceeds from notes payable		304,209,662
Refunding of bonds		(2,247,193)
Receipts from Department of Transportation		(44,160)
Payments on principal		(7,425,000)
Interest payments		(52,689,995)
Acquisition of capital assets		(236,786)
Acquisitions of construction in progress		(79,438,426)
Net cash flows provided by (used in) capital and related financing activities		162,128,103

**Cash flows from investing activities:**

Interest income		106,754
Purchase of investments		(225,757,577)
Proceeds from sale or maturity of investments		187,759,807
Net cash flows provided by (used in) investing activities		(37,891,016)
Net increase (decrease) in cash and cash equivalents		166,853,490
Cash and cash equivalents at beginning of period		169,170,746
Cash and cash equivalents at end of period	\$	336,024,236

**Reconciliation of change in net assets to net cash provided by operating activities:**

Operating income	\$	28,173,781
Adjustments to reconcile change in net assets to net cash provided by operating activities:		
Depreciation and amortization		14,758,486
Changes in assets and liabilities:		
(Increase) decrease in accounts receivable		(1,427,575)
(Increase) decrease in prepaid expenses and other assets		(230,242)
(Decrease) increase in accounts payable		(2,300,548)
Increase (decrease) in accrued expenses		3,642,502
Total adjustments		14,442,623
Net cash flows provided by (used in) operating activities	\$	42,616,404

**Reconciliation of cash and cash equivalents:**

Unrestricted cash and cash equivalents	\$	1,862,275
Restricted cash and cash equivalents		334,161,961
Total	\$	336,024,236

**INVESTMENTS by FUND**

		Balance January 31, 2019		
Renewal & Replacement Fund				
TexSTAR	393,528.86		TexSTAR	149,824,428.58
Goldman Sachs	14,740.03		Goldman Sachs	328,515,961.62
Agencies/ Treasuries		408,268.89	Agencies & Treasury Notes	<u>99,687,334.82</u>
Grant Fund				\$ 578,027,725.02
TexSTAR	4,346,531.54			
Goldman Sachs	512,163.53			
Agencies/ Treasuries	4,958,456.41	9,817,151.48		
Senior Debt Service Reserve Fund				
TexSTAR	5,844,612.70			
Goldman Sachs	26,267,110.74			
Agencies/ Treasuries	49,823,780.99	81,935,504.43		
2010 Senior Lien DSF				
Goldman Sachs	649,682.98			
TexSTAR		649,682.98		
2011 Debt Service Acct				
Goldman Sachs	769,752.11	769,752.11		
2013 Sr Debt Service Acct				
Goldman Sachs	871,997.73	871,997.73		
2013 Sub Debt Service Account				
Goldman Sachs	644,231.18	644,231.18		
2015 Sr Capitalized Interest				
Goldman Sachs	0.02	32,091,835.26		
TexSTAR	32,091,835.24			
2015B Debt Service Account				
Goldman Sachs	296,333.93	296,333.93		
2016 Sr Lien Rev Refunding Debt Service Account				
Goldman Sachs	3,492,004.40	3,492,004.40		
2016 Sub Lien Rev Refunding Debt Service Account				
Goldman Sachs	325,028.25	325,028.25		
2016 Sub Lien Rev Refunding DSR				
Goldman Sachs	1,844,718.99			
Agencies/ Treasuries	4,958,456.41	6,803,175.40		
Operating Fund				
TexSTAR	231,622.56			
TexSTAR-Trustee	4,240,086.86			
Goldman Sachs	26,036.43	4,497,745.85		
Revenue Fund				
Goldman Sachs	4,418,332.73	4,418,332.73		
General Fund				
TexSTAR	25,423,960.43			
Goldman Sachs	53,927,190.07	79,351,150.50		
2013 Sub Debt Service Reserve Fund				
TexSTAR	5,155,477.33			
Goldman Sachs	3,559,164.48	8,714,641.81		
71E Revenue Fund				
Goldman Sachs	8,731,664.93	8,731,664.93		
MoPac Revenue Fund				
Goldman Sachs	33,747.99	33,747.99		
MoPac Construction Fund				
Goldman Sachs	9,458,381.00	9,458,381.00		
MoPac General Fund				
Goldman Sachs	2,527,327.21	2,527,327.21		
MoPac Operating Fund				
Goldman Sachs	789,052.82	789,052.82		
MoPac Loan Repayment Fund				
Goldman Sachs	57,209.10	57,209.10		
2015B Project Account				
Goldman Sachs	23,399,100.09			
Agencies/ Treasuries	10,013,722.74			
TexSTAR	7,782,124.87	41,194,947.70		
2015 TIFIA Project Account				
Goldman Sachs	85,894,527.23			
TexSTAR	48,637,745.57			
Agencies/ Treasuries	29,932,918.27	164,465,191.07		
2015 SIB Project Account				
Goldman Sachs	283.78	283.78		
2011 Sr Financial Assistance Fund				
Goldman Sachs	4.21	15,676,906.83		
TexSTAR	15,676,902.62			
2018 Sr Lien Project Cap I				
Goldman Sachs	7,780,405.16	7,780,405.16		
2018 Sr Lien Project Account				
Goldman Sachs	39,124,922.25	39,124,922.25		
2018 Sub Lien Project Account				
Goldman Sachs	34,218,879.66	34,218,879.66		
2018 Sub Debt Service Account				
Goldman Sachs	153,563.31	153,563.31		
2018 Sr Lien Debt Service Account				
Goldman Sachs	0.00	0.00		
45SW Project Fund				
Goldman Sachs	18,728,396.99	18,728,396.99		
45SW Trust Account Travis County				
Goldman Sachs	8.29	8.29		
		<u>\$ 578,027,725.02</u>		

**CTRMA INVESTMENT REPORT**

Month Ending 1/31/19						
Balance 1/1/2019	Additions	Discount Amortization	Accrued Interest	Withdrawals	Balance 1/31/2019	Rate January
<b>Amount in Trustee TexStar</b>						
2011 Sr Lien Financial Assist Fund			31,859.85	2,247,000.00	15,676,902.62	2.3937%
2013 Sub Lien Debt Service Reserve			10,459.21		5,155,477.33	2.3937%
General Fund			51,579.01		25,423,960.43	2.3937%
Trustee Operating Fund	3,000,000.00		7,008.02	2,200,000.00	4,240,086.86	2.3937%
Renewal and Replacement			798.37		393,528.86	2.3937%
Grant Fund			8,818.06		4,346,531.54	2.3937%
Senior Lien Debt Service Reserve Fund			11,857.29		5,844,612.70	2.3937%
2015A Sr Ln Project Cap Interest			65,627.31	7,469,738.98	32,091,835.24	2.3937%
2015B Sr Ln Project			15,788.04		7,782,124.87	2.3937%
2015C TIFIA Project			98,674.17		48,637,745.57	2.3937%
<b>158,207,075.67</b>	<b>3,000,000.00</b>		<b>302,469.33</b>	<b>11,916,738.98</b>	<b>149,592,806.02</b>	
<b>Amount in TexStar Operating Fund</b>						
	2,200,000.00		469.92	2,200,000.00	231,622.56	2.3937%
<b>Goldman Sachs</b>						
Operating Fund	3,024,750.00		46.03	3,000,906.98	26,036.43	2.3200%
45SW Trust Account Travis County			0.01		8.29	2.3200%
45SW Project Fund	14,920,000.00		9,275.53	287,986.40	18,728,396.99	2.3200%
2015B Project Account	5,037,500.00		34,237.11		23,399,100.09	2.3200%
2015C TIFIA Project Account	78,950,000.00		42,977.90	9,428,887.82	85,894,527.23	2.3200%
2015E SIB Project Account			0.40		283.78	2.3200%
2011 Sr Financial Assistance Fund	2,247,000.00		0.01	2,247,000.00	4.21	2.3200%
2010 Senior DSF	635,693.41		2,787.07	1,555,812.50	649,682.98	2.3200%
2011 Senior Lien Debt Service Acct			1,435.20		769,752.11	2.3200%
2013 Senior Lien Debt Service Acct	828,625.46		12,279.49	6,977,125.00	871,997.73	2.3200%
2013 Subordinate Debt Service Acct	597,628.76		8,282.72	4,748,250.00	644,231.18	2.3200%
2015 Sr Capitalized Interest	7,469,738.98		0.02	7,469,750.00	0.02	2.3200%
2015B Debt Service Acct	284,658.21		2,961.48	1,719,625.00	296,333.93	2.3200%
2016 Sr Lien Rev Refunding Debt Service Account	3,417,602.87		15,492.36	8,722,518.75	3,492,004.40	2.3200%
2016 Sub Lien Rev Refunding Debt Service Account	310,770.60		3,612.41	2,079,381.25	325,028.25	2.3200%
2016 Sub Lien Rev Refunding DSR			3,439.47		1,844,718.99	2.3200%
2018 Sr Lien Project Cap I			14,977.51	252,520.13	7,780,405.16	2.3200%
2018 Sr Lien Project Account			72,949.00		39,124,922.25	2.3200%
2018 Sub Lien Project Account			64,086.43	106,428.20	34,218,879.66	2.3200%
2018 Sub Debt Service Account	153,367.34		195.77	209,646.47	153,563.31	2.3200%
2018 Sr Lien Debt Service Account	252,520.13			252,520.13	0.00	2.3200%
Grant Fund			954.93		512,163.53	2.3200%
Renewal and Replacement			23.16		14,740.03	2.3200%
Revenue Fund	11,120,817.92		6,686.77	9,888,419.10	4,418,332.73	2.3200%
General Fund	10,075,000.00		88,790.81	4,003,561.82	53,927,190.07	2.3200%
Senior Lien Debt Service Reserve Fund			33,762.41		26,267,110.74	2.3200%
71E Revenue Fund	677,199.23		14,503.88	132,824.01	8,731,664.93	2.3200%
2013 Sub Debt Service Reserve Fund			6,636.05		3,559,164.48	2.3200%
MoPac Revenue Fund	1,715,110.90		542.77	1,723,650.04	33,747.99	2.3200%
MoPac General Fund	1,523,650.04		777.06	171,369.50	2,527,327.21	2.3200%
MoPac Operating Fund	333,984.29		1,335.14	250,661.54	789,052.82	2.3200%
MoPac Loan Repayment Fund	57,181.37		27.73	54,643.40	57,209.10	2.3200%
MoPac Managed Lane Construction Fund			22,942.64	2,666,706.71	9,458,381.00	2.3200%
<b>252,367,337.59</b>	<b>143,632,799.51</b>	<b>0.00</b>	<b>466,019.27</b>	<b>67,950,194.75</b>	<b>328,515,961.62</b>	
<b>Amount in Fed Agencies and Treasuries</b>						
Amortized Principal		68,143.86		15,000,000.00	99,687,334.82	
	0.00	68,143.86	0.00	15,000,000.00	99,687,334.82	
<b>Certificates of Deposit</b>						
<b>Total in Pools</b>	<b>5,200,000.00</b>		<b>302,939.25</b>	<b>14,116,738.98</b>	<b>149,824,428.58</b>	
<b>Total in GS FSGF</b>	<b>143,632,799.51</b>		<b>466,019.27</b>	<b>67,950,194.75</b>	<b>328,515,961.62</b>	
<b>Total in Fed Agencies and Treasuries</b>	<b>0.00</b>	<b>68,143.86</b>		<b>15,000,000.00</b>	<b>99,687,334.82</b>	
<b>Total Invested</b>	<b>148,832,799.51</b>	<b>68,143.86</b>	<b>768,958.52</b>	<b>97,066,933.73</b>	<b>578,027,725.02</b>	

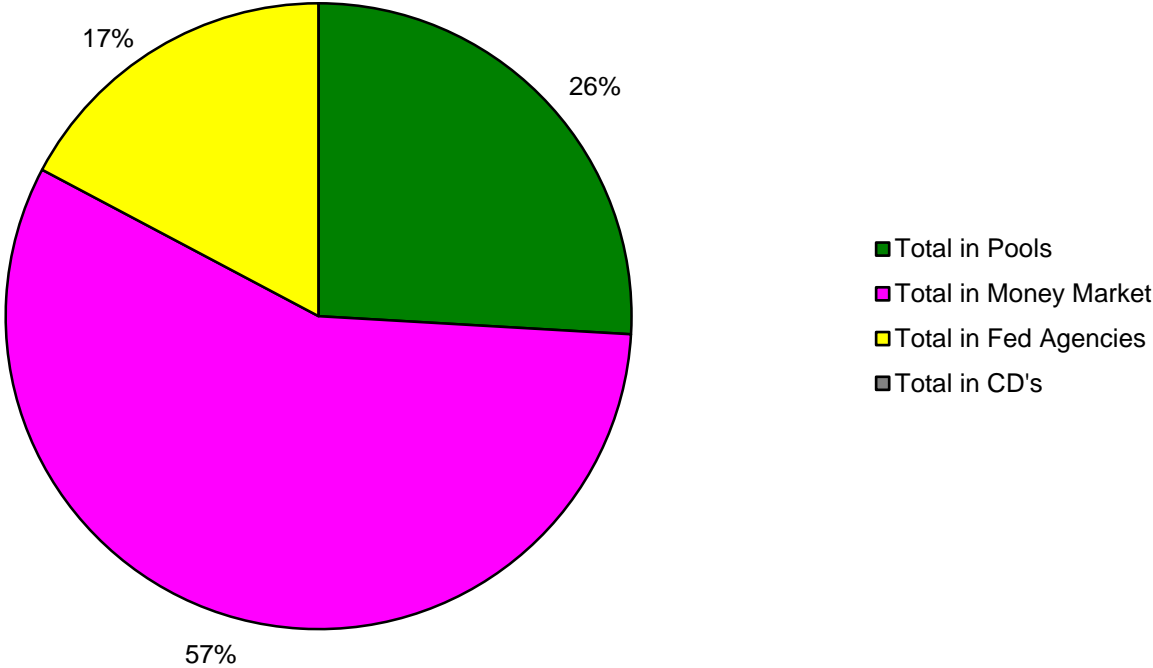
All Investments in the portfolio are in compliance with the CTRMA's Investment policy and the relevant provisions of the Public Funds Investment Act Chapter 2256.023

William Chapman, CFO

Mary Temple, Controller

1/31/2019

# Allocation of Funds



Amount of Investments As of January 31, 2019

Agency	CUSIP #	COST	Book Value	Market Value	Yield to Maturity	Purchased	Matures	FUND
Federal Home loan Bank	313378QK0	10,253,642.07	10,013,722.74	9,994,470.00	1.0369%	2/8/2016	3/8/2019	2015B Sr Project
Federal Home loan Bank	3135G0P49sub	4,921,265.00	4,958,456.41	4,946,835.00	2.4520%	7/20/2018	8/28/2019	2016 Sub DSRF
Federal Home loan Bank	3135G0P49	19,685,060.00	19,833,825.63	19,827,340.00	2.4520%	7/20/2018	8/28/2019	Senior DSRF
US Treasury Note	912828C65	19,929,687.50	19,989,955.36	19,968,750.00	1.9260%	1/25/2018	3/31/2019	Senior DSRF
Farmer Mac	3132X0W64	10,000,000.00	10,000,000.00	9,998,410.00	2.3297%	5/8/2018	5/15/2019	Senior DSRF
US Treasury Note	912828B33	<b>MATURED</b>	<b>MATURED</b>	<b>MATURED</b>	2.1997%	7/20/2018	1/31/2019	2015B Sr Project
US Treasury Note	912828B33a	<b>MATURED</b>	<b>MATURED</b>	<b>MATURED</b>	2.1997%	7/20/2018	1/31/2019	General
Fannie Mae	3135G0P49gnt	4,921,265.00	4,958,456.41	4,956,835.00	2.4520%	7/20/2018	8/28/2019	Grant Fund
US Treasury Note	912828D23	9,946,093.75	9,982,672.99	9,980,468.80	2.3250%	7/20/2018	4/30/2019	2015C TIFIA Project
Federal Home loan Bank	3137EADZ9	19,824,200.00	19,950,245.28	19,945,660.00	2.3352%	7/20/2018	4/15/2019	2015C TIFIA Project
		<u>99,481,213.32</u>	<u>99,687,334.82</u>	<u>99,618,768.80</u>				

Agency	CUSIP #	COST	Cummulative Amortization	1/31/2019 Book Value	Maturity Value	Interest Income January 31, 2019		
						Accrued Interest	Amortization	Interest Earned
Federal Home loan Bank	313378QK0	10,253,642.07	239,919.33	10,013,722.74	10,000,000.00	15,625.00	(6,861.37)	8,763.63
Federal Home loan Bank	3135G0P49sub	4,921,265.00	37,191.41	4,958,456.41	25,000,000.00	4,166.67	5,934.80	10,101.47
Federal Home loan Bank	3135G0P49	19,685,060.00	148,765.63	19,833,825.63	20,000,000.00	16,666.67	23,739.20	40,405.87
US Treasury Note	912828C65	19,929,687.50	(60,267.86)	19,989,955.36	20,000,000.00	27,083.33	5,022.32	32,105.65
Farmer Mac	3132X0W64	10,000,000.00	-	10,000,000.00	10,000,000.00	19,416.67	-	19,416.67
US Treasury Note	912828B33	<b>MATURED</b>	<b>MATURED</b>	<b>MATURED</b>	5,000,000.00	5,921.05	2,898.85	8,819.90
US Treasury Note	912828B33a	<b>MATURED</b>	<b>MATURED</b>	<b>MATURED</b>	10,000,000.00	11,842.11	5,797.70	17,639.81
Fannie Mae	3135G0P49gnt	4,921,265.00	37,191.41	4,958,456.41	5,000,000.00	4,166.67	5,934.80	10,101.47
US Treasury Note	912828D23	9,946,093.75	36,579.24	9,982,672.99	10,000,000.00	13,541.67	5,775.67	19,317.34
Federal Home loan Bank	3137EADZ9	19,824,200.00	126,045.28	19,950,245.28	20,000,000.00	18,750.00	19,901.89	38,651.89
		<u>99,481,213.32</u>	<u>565,424.44</u>	<u>99,687,334.82</u>	<u>135,000,000.00</u>	<u>137,179.84</u>	<u>68,143.86</u>	<u>205,323.70</u>

## ESCROW FUNDS

### Travis County Escrow Fund - Elroy Road

	<u>Balance</u>		<u>Accrued</u>		<u>Balance</u>
	<u>1/1/2019</u>	<u>Additions</u>	<u>Interest</u>	<u>Withdrawals</u>	<u>1/31/2019</u>
Goldman Sachs	1,586,740.79		3,215.31		1,589,956.10

### Campo Regional Infrastructure Fund

	<u>Balance</u>		<u>Accrued</u>		<u>Balance</u>
	<u>1/1/2019</u>	<u>Additions</u>	<u>Interest</u>	<u>Withdrawals</u>	<u>1/31/2019</u>
Goldman Sachs	4,047,955.24		7,561.10	-	4,055,516.34

### 183S Utility Custody Deposit

	<u>Balance</u>		<u>Accrued</u>		<u>Balance</u>
	<u>1/1/2019</u>	<u>Additions</u>	<u>Interest</u>	<u>Withdrawals</u>	<u>1/31/2019</u>
Goldman Sachs	38,983.73	349,447.24	64.62	387,969.08	526.51
TexStar	348,920.73		526.51	349,447.24	-





**183 South Design-Build Project**  
**Contingency Status**  
 January 31, 2019



**Original Construction Contract Value: \$581,545,700**

<b>Total Project Contingency</b>	<b>\$47,860,000</b>
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<b>Obligations</b>	CO#1 City of Austin ILA Adjustment	(\$2,779,934)
	CO#2 Addition of Coping to Soil Nail Walls	\$742,385
	CO#4 Greenroads Implementation	\$362,280
	CO#6 51st Street Parking Trailhead	\$477,583
	CO#9 Patton Interchange Revisions	\$3,488,230
	Others Less than \$300,000 (6)	\$771,575
	CO#10 City of Austin Utility (\$1,010,000 - no cost to RMA)	\$0
	Executed Change Orders	\$3,062,119
	Change Orders Under Negotiation	\$8,750,000
	Potential Contractual Obligations	\$10,570,000

<b>(-) Total Obligations</b>	<b>\$22,382,119</b>
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<b>Remaining Project Contingency</b>	<b>\$25,477,881</b>
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**SH 45SW Construction  
Contingency Status**  
January 31, 2018



**Original Construction Contract Value: \$75,103,623**

<b>Total Project Contingency</b>		<b>\$ 7,520,000</b>
<b>Obligations</b>	CO #04 Installation of PEC and TWC Conduits	\$ 458,439
	CO #05 Installation of SSTR Drilled Shafts and Moment Slab	\$ 538,945
	Total of Others Less than \$300,000 (14)	\$ 326,264
	Executed Change Orders	\$ 1,323,648
	Change Orders in Negotiations	\$ 60,478
	Potential Contractual Obligations	\$ 2,412,305
	<b>(-) Total Obligations</b>	<b>\$ 3,796,431</b>
	<b>Remaining Project Contingency</b>	<b>\$ 3,723,569</b>



**MOPAC Construction**  
**Financial Status**  
 January 31, 2018



**Original Construction Contract Value: \$ 136,632,100**

<b>Change Orders</b>	CO#01B	5th & Cesar Chavez SB Reconfig (Construction)	\$593,031	<b>Approved = \$12.9M</b>
	CO#05B	FM 2222 Bridge NB Ret Wall Abutment Repair (Construction)	\$850,000	
	CO#07	FM 2222 Exit Storage Lane	\$426,000	
	CO#08C	Refuge Area: Added Shoulder Adjustment Sound Wall #1	\$2,508,548	
	CO#09	Westover SB Frontage Repairs	\$450,000	
	CO#12	Barrier Rail Opaque Seal	\$542,419	
	CO#17	Bike and Ped Improvements at Far West Blvd Bridge/FM 2222	\$971,889	
	CO#20	Northern Terminus Sound Wall #3	(\$1,210,540)	
	CO#32	Void of CO#05B, #09, #10, UPRR	(\$1,501,437)	
	CO#33	Shared Use Path at US 183	(\$1,000,000)	
	CO#34	Undercrossing Fire Protection	\$1,412,574	
	CO#35	TxDOT Duct Bank Interference	\$1,357,196	
	CO#36	Non-Compliant Existing Illumination	\$2,226,189	
	CO#37	NB Pavement Cross Slope and Profile Corrections	\$3,635,477	
	CO#38	SB Pavement Cross Slope and Profile Corrections	\$3,100,298	
CO#39	Unidentified Utilities	\$1,215,854		
CO#42	NB04, NB08, and Westminster Wall Revisions	(\$402,964)		
	Total of Others Less than \$300,000 (21)	\$1,572,258		
<b>Executed Change Orders</b>			<b>\$ 16,746,792</b>	
<b>Revised Construction Contract Value</b>			<b>\$ 153,378,892</b>	
<b>Change Orders under Negotiation</b>			<b>\$ 2,052,412</b>	
<b>Potential Construction Contract Value</b>			<b>\$ 155,431,304</b>	
<b>Incentive/Milestone</b>			<b>\$ 21,500,000</b>	
<b>Potential Construction Contract Value with Incentive/Milestone</b>			<b>\$ 176,931,304</b>	
<b>Amount paid CH2M for Incentives/Milestones</b>			<b>\$ (16,825,210)</b>	
<b>Amount paid CH2M through January 2018 draw (as of 1/31/2018)</b>			<b>\$ (125,299,740)</b>	
<b>Assessed Liquidated Damages</b>			<b>\$ (20,000,000)</b>	
<b>Potential Amount Payable to CH2M</b>			<b>\$ 13,631,565</b>	



## Monthly Newsletter - January 2019

### Performance

#### As of January 31, 2019

Current Invested Balance	\$8,624,044,987.80
Weighted Average Maturity (1)	45 Days
Weighted Average Maturity (2)	97 Days
Net Asset Value	0.999987
Total Number of Participants	890
Management Fee on Invested Balance	0.06%*
Interest Distributed	\$17,225,090.88
Management Fee Collected	\$421,332.04
% of Portfolio Invested Beyond 1 Year	4.89%
Standard & Poor's Current Rating	AAAm

#### January Averages

Average Invested Balance	\$8,267,750,815.23
Average Monthly Yield, on a simple basis	2.3937%
Average Weighted Average Maturity (1)*	37 Days
Average Weighted Average Maturity (2)*	82 Days

#### Definition of Weighted Average Maturity (1) & (2)

- (1) This weighted average maturity calculation uses the SEC Rule 2a-7 definition for stated maturity for any floating rate instrument held in the portfolio to determine the weighted average maturity for the pool. This Rule specifies that a variable rate instrument to be paid in 397 calendar days or less shall be deemed to have a maturity equal to the period remaining until the next readjustment of the interest rate.
- (2) This weighted average maturity calculation uses the final maturity of any floating rate instruments held in the portfolio to calculate the weighted average maturity for the pool.

\* The maximum management fee authorized for the TexSTAR Cash Reserve Fund is 12 basis points. This fee may be waived in full or in part in the discretion of the TexSTAR co-administrators at any time as provided for in the TexSTAR Information Statement.

Rates reflect historical information and are not an indication of future performance.

### New Participants

We would like to welcome the following entities who joined the TexSTAR program in January:

★ Harris County MUD 519    ★ City of Wilmer

### Holiday Reminders

In observance of Presidents' Day, **TexSTAR will be closed Monday, February 18, 2019.** All ACH transactions initiated on Friday, February 15th will settle on Tuesday, February 19th.

### Economic Commentary

After a tumultuous end to 2018, markets rebounded in January and credit spreads tightened, making up most of the losses from the fourth quarter after Fed chair Jerome Powell's reassuring comments at the beginning of the month. Easing trade tensions and continued dovish Federal Reserve (Fed) rhetoric uplifted sentiment. The U.S. and China engaged in trade negotiations, both sides showing optimism and willingness to make progress. After a prolonged standoff between the White House and the House of Representatives over border security funding, the 35-day partial government shutdown, the longest on record, ended with a three-week extension. Markets worried that the shutdown could negatively impact economic growth but the Congressional Budget Office expects the negative impact to GDP in the first quarter will be mostly recovered in subsequent quarters. The Fed kept rates unchanged at its January Federal Open Market Committee (FOMC) meeting, a move that was widely anticipated, and took a dovish turn by dropping the December reference to "further gradual increases". The Committee stated it will be "patient" in determining the path of rate hikes, primarily due to softer inflation, slowing global growth particularly in China and Western Europe, and tighter financial conditions. Markets, which were already pricing in expectations of no further rate hikes, began to price in the potential for an interest rate cut in 2020 in response.

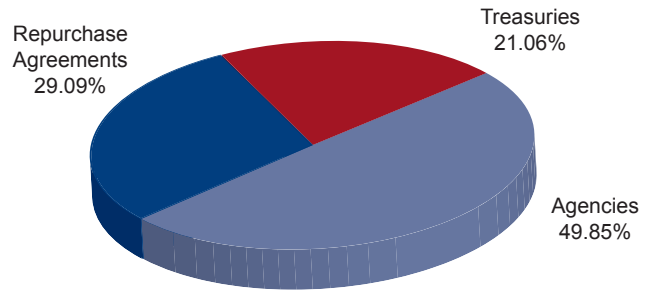
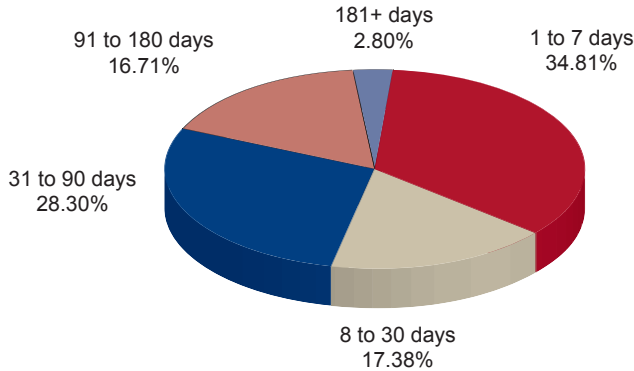
Although the boost from fiscal spending will start to fade in the second half of 2019, we expect the U.S. to maintain its positive growth momentum as the domestic drivers, particularly consumption, remain intact. We also expect job growth to remain robust, but the pace to gradually slow as the year progresses, with the unemployment rate continuing to decline. The FOMC has fully shifted away from pre-set quarterly rate hikes towards data dependence. The recent tightening in financial conditions in Q4 and uncertain global economic backdrop has translated into a Fed that is more willing to be patient in the current environment. We think the Fed will likely raise rates again in the second half of 2019 after pausing to assess the landscape. During this time, we expect the labor market to continue to tighten, inflation to move gradually higher, lingering fiscal stimulus to have a positive impact on the first half of the year and regulatory reform to proceed. Some resolution or de-escalation of U.S.-China trade protectionism and policy will likely also be a necessary ingredient. The length of the Fed's pause will be dependent on the extent to which these positive developments emerge.

This information is an excerpt from an economic report dated January 2019 provided to TexSTAR by JP Morgan Asset Management, Inc., the investment manager of the TexSTAR pool.

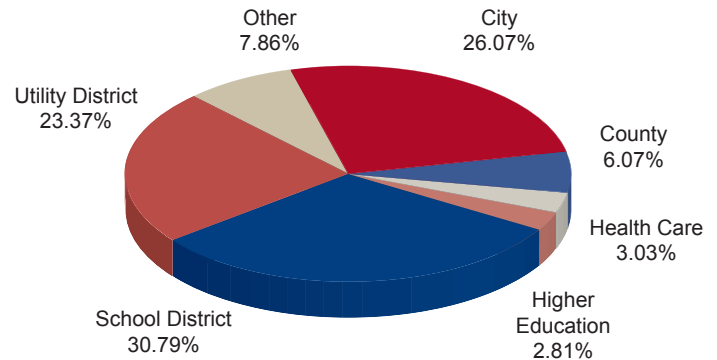
**For more information about TexSTAR, please visit our web site at [www.texstar.org](http://www.texstar.org).**

# Information at a Glance

## Portfolio by Type of Investment As of January 31, 2019



## Portfolio by Maturity As of January 31, 2019



## Distribution of Participants by Type As of January 31, 2019

# Historical Program Information

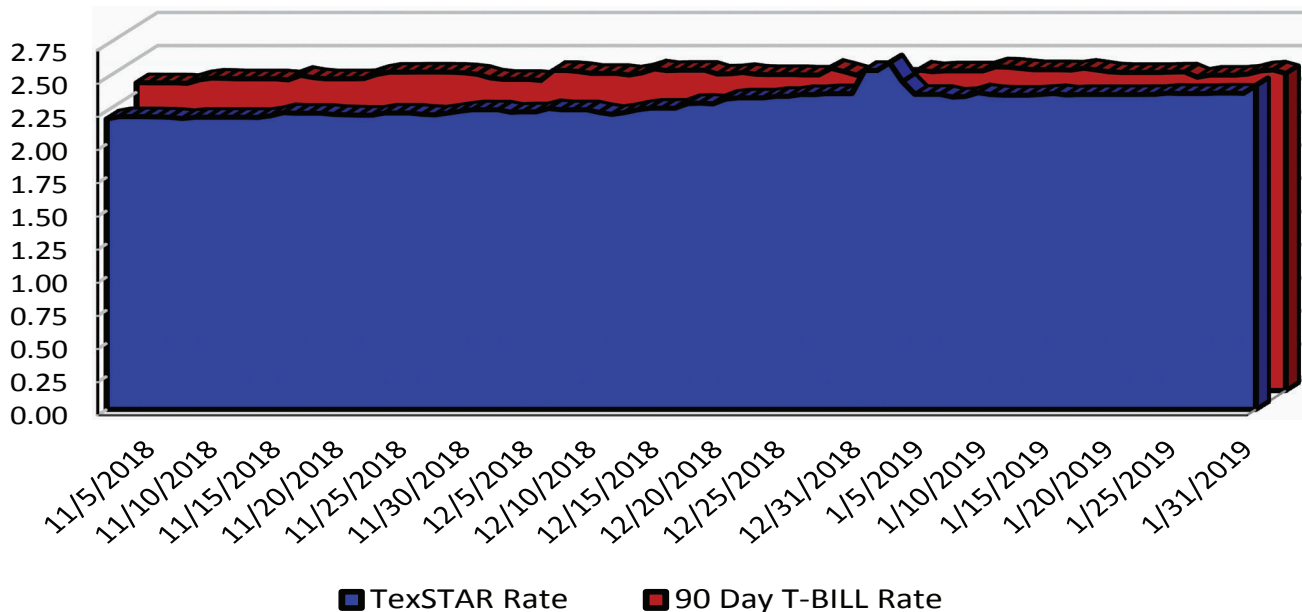
Month	Average Rate	Book Value	Market Value	Net Asset Value	WAM (1)*	WAM (2)*	Number of Participants
Jan 19	2.3937%	\$8,624,044,987.80	\$8,623,938,284.28	0.999987	37	82	890
Dec 18	2.3069%	7,738,483,374.11	7,738,245,287.60	0.999940	40	95	888
Nov 18	2.2176%	6,683,233,268.87	6,682,898,473.43	0.999949	41	102	886
Oct 18	2.1615%	6,581,942,899.40	6,581,269,831.00	0.999897	41	101	884
Sep 18	1.9995%	6,458,418,968.50	6,458,002,746.78	0.999935	30	96	883
Aug 18	1.9225%	6,701,017,159.16	6,701,228,119.73	0.999971	24	91	879
Jul 18	1.8965%	6,837,425,331.68	6,837,427,966.67	1.000000	19	84	877
Jun 18	1.8300%	6,250,002,595.51	6,250,027,195.61	0.999991	26	99	874
May 18	1.7258%	6,489,773,533.02	6,489,474,005.73	0.999953	29	106	868
Apr 18	1.6304%	6,358,425,417.53	6,358,101,312.82	0.999949	18	99	861
Mar 18	1.4995%	6,461,363,510.56	6,460,804,379.93	0.999892	28	105	857
Feb 18	1.3518%	7,130,310,070.00	7,129,718,573.04	0.999917	28	97	854

# Portfolio Asset Summary as of January 31, 2019

	Book Value	Market Value
Uninvested Balance	\$ (1,541.21)	\$ (1,541.21)
Accrual of Interest Income	10,499,002.56	10,499,002.56
Interest and Management Fees Payable	(17,268,381.75)	(17,268,381.75)
Payable for Investment Purchased	(348,178,484.00)	(348,178,484.00)
Repurchase Agreement	2,611,970,999.83	2,611,970,999.83
Government Securities	6,367,023,392.37	6,366,916,688.85
<b>Total</b>	<b>\$ 8,624,044,987.80</b>	<b>\$ 8,623,938,284.28</b>

Market value of collateral supporting the Repurchase Agreements is at least 102% of the Book Value. The portfolio is managed by J.P. Morgan Chase & Co. and the assets are safekept in a separate custodial account at the Federal Reserve Bank in the name of TexSTAR. The only source of payment to the Participants are the assets of TexSTAR. There is no secondary source of payment for the pool such as insurance or guarantee. Should you require a copy of the portfolio, please contact TexSTAR Participant Services.

# TexSTAR versus 90-Day Treasury Bill



This material is for information purposes only. This information does not represent an offer to buy or sell a security. The above rate information is obtained from sources that are believed to be reliable; however, its accuracy or completeness may be subject to change. The TexSTAR management fee may be waived in full or in part at the discretion of the TexSTAR co-administrators and the TexSTAR rate for the period shown reflects waiver of fees. This table represents historical investment performance/return to the customer, net of fees, and is not an indication of future performance. An investment in the security is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. Although the issuer seeks to preserve the value of an investment at \$1.00 per share, it is possible to lose money by investing in the security. Information about these and other program details are in the fund's Information Statement which should be read carefully before investing. The yield on the 90-Day Treasury Bill ("T-Bill Yield") is shown for comparative purposes only. When comparing the investment returns of the TexSTAR pool to the T-Bill Yield, you should know that the TexSTAR pool consist of allocations of specific diversified securities as detailed in the respective Information Statements. The T-Bill Yield is taken from Bloomberg Finance L.P. and represents the daily closing yield on the then current 90-day T-Bill. The TexSTAR yield is calculated in accordance with regulations governing the registration of open-end management investment companies under the Investment Company Act of 1940 as promulgated from time to time by the federal Securities and Exchange Commission.

## Daily Summary for January 2019

Date	Mny Mkt Fund Equiv. [SEC Std.]	Daily Allocation Factor	TexSTAR Invested Balance	Market Value Per Share	WAM Days (1)*	WAM Days (2)*
1/1/2019	2.5549%	0.000069998	\$7,738,483,374.11	0.999940	35	82
1/2/2019	2.6125%	0.000071574	\$7,894,510,672.14	0.999940	34	80
1/3/2019	2.4721%	0.000067728	\$7,947,468,081.00	0.999955	34	77
1/4/2019	2.3747%	0.000065060	\$7,920,575,420.48	0.999954	33	78
1/5/2019	2.3747%	0.000065060	\$7,920,575,420.48	0.999954	33	78
1/6/2019	2.3747%	0.000065060	\$7,920,575,420.48	0.999954	33	78
1/7/2019	2.3538%	0.000064488	\$8,034,628,599.34	0.999954	32	76
1/8/2019	2.3588%	0.000064626	\$8,053,770,724.78	0.999936	38	81
1/9/2019	2.3870%	0.000065398	\$8,168,428,433.25	0.999944	41	86
1/10/2019	2.3734%	0.000065026	\$8,177,355,611.68	0.999946	41	85
1/11/2019	2.3689%	0.000064902	\$8,319,064,989.26	0.999946	39	81
1/12/2019	2.3689%	0.000064902	\$8,319,064,989.26	0.999946	39	81
1/13/2019	2.3689%	0.000064902	\$8,319,064,989.26	0.999946	39	81
1/14/2019	2.3745%	0.000065056	\$8,314,269,763.39	0.999959	40	82
1/15/2019	2.3811%	0.000065236	\$8,284,089,506.18	0.999956	40	83
1/16/2019	2.3701%	0.000064934	\$8,392,078,151.54	0.999965	40	81
1/17/2019	2.3736%	0.000065031	\$8,348,547,110.96	0.999970	39	81
1/18/2019	2.3736%	0.000065030	\$8,298,752,509.28	0.999970	37	79
1/19/2019	2.3736%	0.000065030	\$8,298,752,509.28	0.999970	37	79
1/20/2019	2.3736%	0.000065030	\$8,298,752,509.28	0.999970	37	79
1/21/2019	2.3736%	0.000065030	\$8,298,752,509.28	0.999970	37	79
1/22/2019	2.3740%	0.000065040	\$8,420,000,570.67	0.999970	36	77
1/23/2019	2.3747%	0.000065059	\$8,430,006,163.22	0.999964	38	83
1/24/2019	2.3839%	0.000065311	\$8,546,899,932.20	0.999978	38	81
1/25/2019	2.3809%	0.000065231	\$8,451,331,561.87	0.999970	38	83
1/26/2019	2.3809%	0.000065231	\$8,451,331,561.87	0.999970	38	83
1/27/2019	2.3809%	0.000065231	\$8,451,331,561.87	0.999970	38	83
1/28/2019	2.3849%	0.000065341	\$8,447,394,223.75	0.999979	38	82
1/29/2019	2.3846%	0.000065331	\$8,624,115,469.59	0.999976	36	91
1/30/2019	2.3823%	0.000065268	\$8,586,257,944.60	0.999972	39	92
1/31/2019	2.4409%	0.000066874	\$8,624,044,987.80	0.999987	45	97
Average	2.3937%	0.000065581	\$8,267,750,815.23		37	82



**TexSTAR Participant Services**  
**1201 Elm Street, Suite 3500**  
**Dallas, TX 75270**  
**1-800-839-7827**

### ***TexSTAR Board Members***

William Chapman	Central Texas Regional Mobility Authority	Governing Board President
Nell Lange	City of Frisco	Governing Board Vice President
Eric Cannon	City of Allen	Governing Board Treasurer
David Medanich	Hilltop Securities	Governing Board Secretary
Jennifer Novak	J.P. Morgan Asset Management	Governing Board Asst. Sec./Treas.
Monte Mercer	North Central TX Council of Government	Advisory Board
Becky Brooks	City of Grand Prairie	Advisory Board
Nicole Conley	Austin ISD	Advisory Board
David Pate	Richardson ISD	Advisory Board
James Mauldin	University of North Texas System	Advisory Board
Ron Whitehead	Qualified Non-Participant	Advisory Board



The material provided to TexSTAR from J.P. Morgan Asset Management, Inc., the investment manager of the TexSTAR pool, is for informational and educational purposes only, as of the date of writing and may change at any time based on market or other conditions and may not come to pass. While we believe the information presented is reliable, we cannot guarantee its accuracy. HilltopSecurities is a wholly owned subsidiary of Hilltop Holdings, Inc. (NYSE: HTH) located at 1201 Elm Street, Suite 3500, Dallas, Texas 75270, (214) 859-1800. Past performance is no guarantee of future results.

Investment Management Services are offered through J.P. Morgan Asset Management Inc. and/or its affiliates. Marketing and Enrollment duties are offered through HilltopSecurities and/or its affiliates. HilltopSecurities and J.P. Morgan Asset Management Inc. are separate entities.



**GENERAL MEETING OF THE BOARD OF DIRECTORS  
OF THE  
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY  
RESOLUTION NO. 19-006**

**ADOPTING THE MOBILITY AUTHORITY ANNUAL REPORT FOR 2018**

WHEREAS, pursuant to Texas Transportation Code Section 370.261 and CTRMA Policy Code Section 101.013(b), the Central Texas Regional Mobility Authority is required to prepare an Annual Report on its activities during the preceding year and describing all turnpike revenue bond issuances anticipated for the coming year, the financial condition of the authority, all project schedules, and the status of the Mobility Authority's performance under the most recent Strategic Plan; and

WHEREAS, each Annual Report must be submitted to the Board for review, approval and adoption; and

WHEREAS, the Mobility Authority is required to file the 2018 CTRMA Annual Report with the Commissioners Courts of Travis County and Williamson County not later than March 31, 2019; and

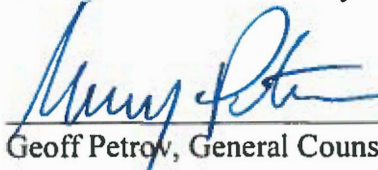
WHEREAS, the Executive Director provided a draft of the proposed 2018 CTRMA Annual Report for the Board's review and consideration at the Mobility Authority's February 27, 2019 Board Meeting, a copy of which is attached hereto as Exhibit A; and

WHEREAS, the Executive Director recommends that the Board approve and adopt the proposed 2018 CTRMA Annual Report attached hereto as Exhibit A.


NOW, THEREFORE, BE IT RESOLVED, that the Board hereby approves and adopts the 2018 CTRMA Annual Report attached hereto as Exhibit A, and directs the Executive Director to file the 2018 CTRMA Annual Report with the Commissioners Courts of Travis County and Williamson County not later than March 31, 2019.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 27<sup>th</sup> day of February 2019.

Submitted and reviewed by:

  
\_\_\_\_\_  
Geoff Petrov, General Counsel

Approved:

  
\_\_\_\_\_  
Ray A. Wilkerson  
Chairman, Board of Directors



**Exhibit A**

2018

ANNUAL REPORT & FINANCIAL STATEMENTS

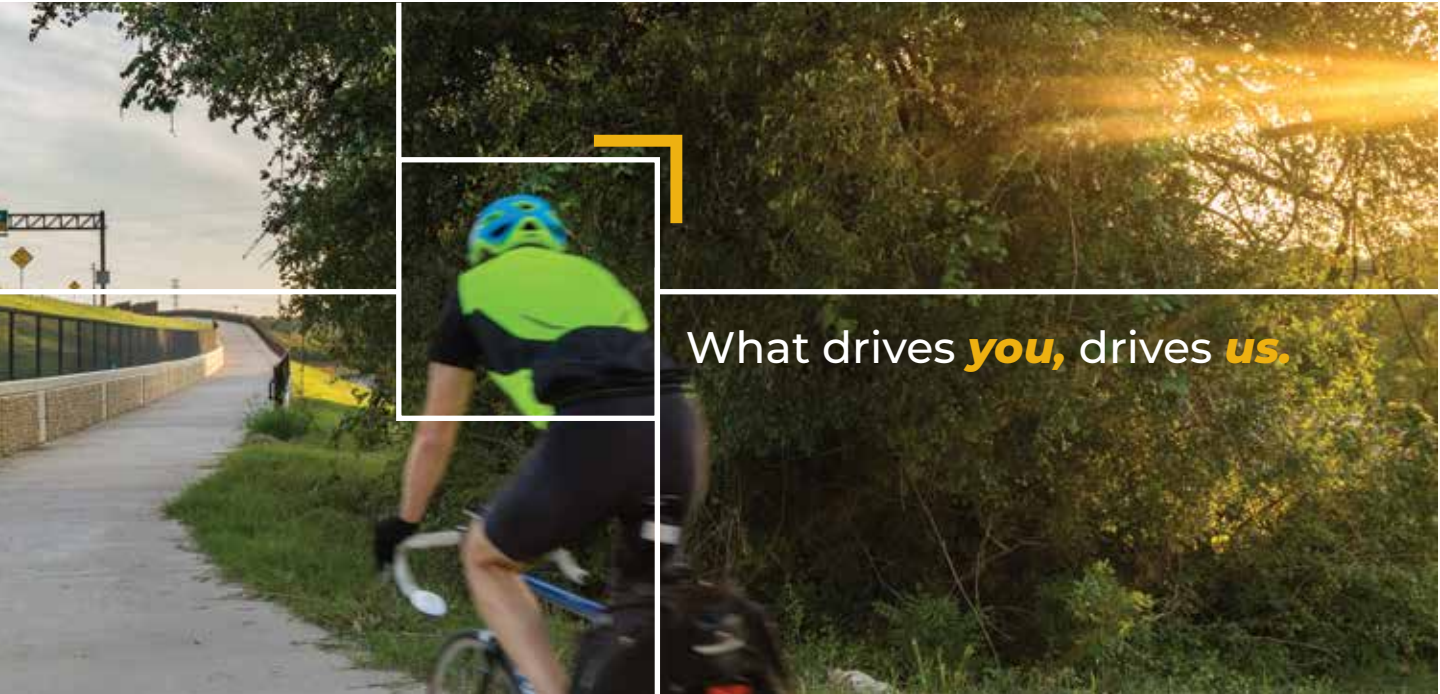


CENTRAL TEXAS REGIONAL  
MOBILITY AUTHORITY

DRIVEN TO

DELIVER

What drives *you*, drives *us*.



What drives *you*, drives *us*.

# CONTENTS

## DID YOU KNOW?

The Mobility Authority is delivering more than infrastructure to Central Texas.

Our open roads have driven economic development in Williamson and Travis counties, with additional development on the horizon.



From 2007 to 2018, property values along the 183A corridor increased by over \$1.2 billion, a 171 percent growth.



Austin Community College - San Gabriel Campus opened in 2018 just west of 183A in Leander.



St. David's Emergency Center in Leander opened in 2018 on 183A.



Realtor.com ranked the city of Manor the #7 fastest-growing zip code in the U.S. in 2018.



As a traffic generator for 290 Toll, the city of Elgin's population is expected to triple in the next 10 years.



Austin-Bergstrom International Airport (ABIA) is seeing significant growth with a \$350 million terminal expansion project to add nine more gates. The expansion project will increase the airport's capacity from 11 million to 15 million passengers annually.

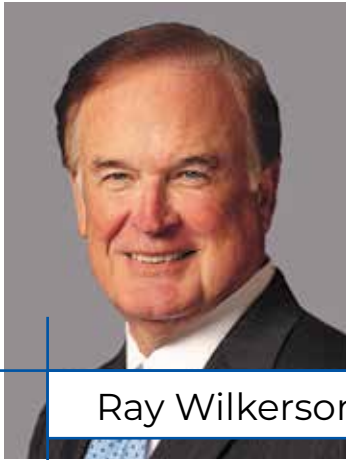


Grocer H-E-B purchased 17.2 acres near ABIA on the 71 Toll Lane corridor. There are currently no major grocery stores in the area.

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## FROM THE DESK OF OUR CHAIRMAN

### Driving Central Texas Toward New Beginnings



Ray Wilkerson

We consider it a **privilege** to be behind the wheel when it comes to **improving mobility** for the communities we serve.

With 2018 in our rearview mirror, we reflect on the past year's milestones and look toward the challenges and opportunities of tomorrow. We remain committed to raising the bar on what it means to preserve and enhance quality of life through the delivery of customer-centric, reliable and forward-thinking mobility solutions.

Our foundation of consistent delivery gives way to new beginnings. We are on the verge of providing the residents of southwest Travis and northern Hays counties a brand-new roadway as we put the final finishes on the SH 45SW project. This long-awaited bypass route will bring commuters the benefit of choice, allowing them to avoid congested local roads while enhancing safety for neighborhoods subject to cut-through traffic. We consider it a privilege to be behind the wheel when it comes to improving mobility for the communities we serve.

We're poised to continue bringing our vision of greater mobility to life, and we've only just begun. As we break ground on the 290/130 Flyovers project, we're establishing new connections and delivering on the call for choice and reliability. Our neighbors on the east side are beginning to see improvements take shape as we surpass the halfway mark on the 183 South project. In Central Austin, MoPac drivers are getting where they want to go reliably with the new Express Lane.

Keeping our finger on the pulse of tomorrow's needs we remain driven. Driven to remain a pillar of the transportation community. Driven to pioneer new ways of improving mobility. Driven to deliver solutions. Driven by you.

A handwritten signature in black ink that reads "Ray. Wilkerson". The signature is fluid and cursive, with a long horizontal stroke at the end.

## FROM THE DESK OF OUR EXECUTIVE DIRECTOR

### Cultivating a Better Quality of Life

There's no denying it—living in Central Texas comes with a sense of pride and love. Our collective passion makes Central Texas one of the most desirable places in the U.S. to live, drawing in more residents daily. That comes with increased demand for reliable mobility options to connect our downtown core with the surrounding suburbs. We know our charge to meet the growing mobility need is more important than ever. We are rising to the challenge.

We are an agency developed by Central Texas, for Central Texas, and governed by Central Texans. Our journey toward a better mobility future is fueled by our shared passion. We know you hate traffic congestion as much as we do, and we are driven to deliver meaningful relief to move us all forward.

We recognize that we have more than population growth to contend with. Significant changes to the nature of mobility and the evolution of our regional landscape make the movement of people and goods a growing challenge. But we are primed to achieve our vision. By leveraging technology, adopting industry best practices, and collaborating with regional partners and stakeholders, we'll continue developing solutions that preserve the spirit and authenticity of our beloved Central Texas.

After all, this is our home too.

*Mike Heiligenstein*



Mike Heiligenstein

Our journey  
toward a **better**  
**mobility** future  
is fueled by our  
shared **passion.**



# TRANSFORMING CENTRAL TEXAS

PROJECTS  
ON THE GROUND

Before we tell you where we're going, let's take a look back at the momentum driving us forward.





## DID YOU KNOW?

We never toll an *existing roadway*. Our tolled improvements consist of *added capacity*, as required by Texas state law.

## INVESTING IN YOU

Since our inception in 2002, the Mobility Authority has transformed a regional investment of \$518 million into nearly \$2 billion in added-capacity infrastructure improvements.

**\$518**  
MILLION

Investment — — — — — Infrastructure

**\$2 BILLION**

Moving forward, we anticipate leveraging an additional \$184 million investment into another \$1.4 billion in new infrastructure.

**\$184**  
MILLION

Future Investment — — — — — Future Infrastructure

**\$1.4 BILLION**



## LEVERAGING LIMITED FUNDING TO CREATE REAL SOLUTIONS

Public dollars for transportation improvements are in short supply, yet our needs for mobility improvements are greater than ever. Rather than waiting decades, or longer, for public funding to become available, we use a flexible financing approach that allows us to build out our infrastructure with the added capacity we need today. The revenue we generate is reinvested right here in Central Texas to help expand our regional infrastructure network.



## MAKING OUR OWN LANE

PROJECT TOUR:  
UNDER CONSTRUCTION

We're picking up speed as we drive towards the finish line on our projects under construction.

183 SOUTH PROJECT



## IMPROVEMENTS TAKE SHAPE ON AUSTIN'S EAST SIDE

We have surpassed the halfway mark on constructing this \$743 million project in east Austin. Drivers and neighbors are beginning to see our vision come to life. With portions of the brand-new general-purpose lanes already carrying traffic, major bridge structures rising up from the ground, and intersection improvements already alleviating congestion, we're well on our way to full project opening in 2020. By transforming this corridor into a modern expressway built for tolled and non-tolled travel, we're creating a new normal for east Austin mobility that will serve the community for decades to come.



## DID YOU KNOW?

96 Miles

The 183 South project will include enough new pavement to construct a single 96-mile lane that could stretch from Austin to San Antonio.

SH 45SW PROJECT



## TIME SAVINGS WITH SH 45SW



**9-17 Mins. Saved**  
Using SH 45SW



**6-7 Mins. Saved**  
Using Neighborhood Route Instead

## PAVING A NEW WAY FOR SOUTH AUSTIN COMMUTERS

Drivers in northern Hays and southern Travis counties are about to see meaningful relief. SH 45SW will provide a choice to bypass congestion, reducing travel times for all drivers, even those using local neighborhood routes. Originally projected to open in summer 2019, the SH 45SW project is nearing completion several months early.

Through our efforts to protect our precious natural resources, we have developed an industry-leading model for environmental compliance. Construction practices, observation, on-site compliance monitoring, and other project elements exceed industry standards and ensure protection of the sensitive Edwards Aquifer Recharge Zone.



2018 WINNER

We are honored to be the recipient of the 18th Annual Austin Chamber of Commerce's Brookfield Residential Environmental Champion Award for our investment in sustainability, innovation and leadership in the transportation industry, most notably the SH 45SW project.





# CONSTRUCTING FOR TOMORROW, TODAY

PROJECTS  
ON THE HORIZON

## BRIDGING THE WAY FOR SUBURBAN COMMUTERS

Our next order of business is providing suburban commuters a more-efficient route into Austin. In partnership with the Texas Department of Transportation (TxDOT), we're constructing three free-flowing flyover bridges between 290 Toll and SH 130. When the project opens in 2021 all drivers will see relief at the convergence of these two heavily traveled facilities, even non-tolled drivers. The new flyovers will free up capacity at the non-tolled frontage road intersection below, improving circulation through the area.

TxDOT will fund the non-tolled east-to-south flyover. The Mobility Authority will fund the tolled north-to-west and south-to-west flyovers using toll revenue bonds and a Transportation Infrastructure Finance and Innovation Act (TIFIA) loan, an exclusive type of federal financing reserved for agencies that consistently deliver successful projects. The TIFIA loan will ultimately equate to \$80 to \$100 million in interest savings over the life of the loan.



290/130 FLYOVERS  
PROJECT



## DID YOU KNOW?

Former Mobility Authority board member **James H. Mills** was an advocate for the 290/130 Flyovers; the north-to-west and south-to-west flyover bridges will be named in his honor.





183A  
PHASE III  
PROJECT



## PLANNING FOR FUTURE GROWTH

Tomorrow's mobility challenges are today's priorities. Building on the success of 183A Toll, we're forging ahead on a project to extend the 183A Toll road 6.6 miles northward to north of SH 29 in Liberty Hill with two lanes in each direction and plans to add a third lane in the future. Constructing this third phase of 183A Toll will help relieve congestion, improve safety, and enhance mobility for residents and commuters from Cedar Park, Leander, and Liberty Hill as well as other areas of Williamson County.

The Mobility Authority is committed to building a future that protects quality of life for Central Texans. The inclusion of a 10-foot-wide shared use path lives up to that mission by enhancing mobility and generating multimodal travel options for the community.



Williamson County residents enjoy a **high quality of life**. I am committed to working with regional partners like the Mobility Authority on projects that preserve that standard. The **northern extension of 183A** is just that kind of project and I look forward to my constituents having **another option to help keep them moving.**”

*Cynthia Long,  
Williamson County Commissioner, Precinct Two*

## DID YOU KNOW?



**200%** Williamson County's population is expected to grow by 200 percent between 2020 and 2050.\*


\*U.S. Bureau of the Census


## MOPAC EXPRESS LANE PERFORMANCE


### MOPAC: A REAL LANE CHANGER


The new Express Lane has changed the game for MoPac commuters. With more reliable travel times, drivers are spending their saved time in more meaningful ways. While not intended for daily use, the MoPac Express Lane is meant for special occasions. Think about all the late fees paid to daycare, family dinners you've missed, or meetings delayed—because of unpredictable travel times.



 **1,600** The MoPac Express Lane carries up to **1,600 vehicles per hour**, freeing up capacity in the non-tolled lanes.

 An algorithm and operators **adjust toll rates** to keep traffic moving.

 Toll-free access for Capital Metro has **increased Express Bus ridership** by 73 percent on MoPac.

 Real-time traffic monitoring through the Traffic & Incident Management (TIM) Center facilitates **swift incident clearance** and emergency response.



### DID YOU KNOW?

Emergency first responders have toll-free access to the Express Lane, improving the reliability of emergency services in the corridor.





*The TIM Center is the heart of our intelligent transportation system. It allows us to monitor our facilities and coordinate resources for swift incident management and debris clearance.*

## LIFE IN THE FAST LANE

With average speeds generally above 50 miles per hour, drivers choosing the Express Lane during morning and afternoon rush hours...



move up to **21 miles per hour** faster



save up to **25 minutes** in travel time

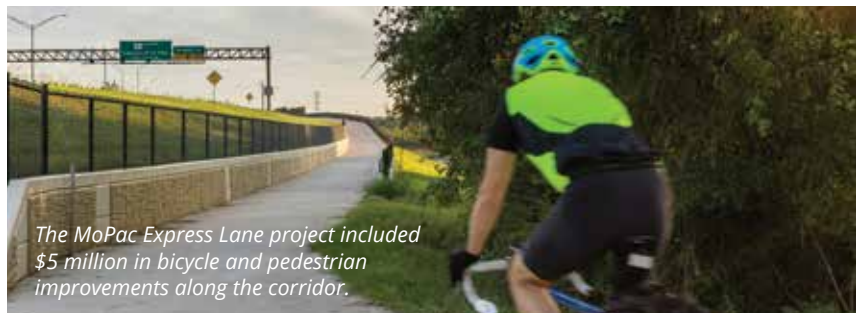


## TRANSFORMATIVE TECHNOLOGY

We're improving the commute experience through technology. Our TIM Center is key to making MoPac a smart corridor. Housing state-of-the-art technology to monitor traffic flow, this facility serves as the heart of our operations and closes the gap between demand and performance. The data fed into the TIM Center through high-definition cameras and vehicle-detection sensors enables faster emergency response, coordination of resources for incident or debris clearance, and enhances safety for all travelers.

## DID YOU KNOW?

The most common make of vehicles in the Express Lane are those driven by middle income residents. **Ford makes up 15.2 percent** of vehicles, followed by **Toyota at 12.7 percent**, and **Chevrolet at 10.7 percent**.



*The MoPac Express Lane project included \$5 million in bicycle and pedestrian improvements along the corridor.*

## ELEVATING THE CUSTOMER EXPERIENCE

### YOU SPOKE, WE LISTENED.

**The choice is yours. Drive our toll facilities when you need a more-reliable route.**

Or choose the non-tolled route when you prefer not to pay a toll. Our roadways keep you connected to all the places you live, work, and play.

**Pay it your way. When you choose the toll road, make the payment process as effortless as the trip.**

Choose any tag-based option and receive discounted toll rates across Texas. With a tag account, tolls are automatically deducted from your prepaid, linked account. Don't worry about fines or violations, or checking the mail for your toll bill.



By TxDOT



By NTTA



By HCTRA



By KTA



By OTA



### PAY BY MAIL

**PAY BY MAIL**

**Don't have a tag account? No problem. Drive on through and we'll mail you a bill.**

**KEEP MOVING,  
we'll bill you later**



*We're evolving the Pay By Mail process to be more user-friendly and offering options that better suit customer needs. It's part of our commitment to uphold the high standard of quality we know our customers deserve. Visit [www.PayMobilityBill.com](http://www.PayMobilityBill.com) to learn more.*



### DID YOU KNOW?



Tag accounts are the simplest, **most cost-effective way to pay tolls**, even

for infrequent toll road drivers.

## MOVE FWD MOVING FORWARD WITH CENTRAL TEXAS' WORKFORCE

As a local agency, we are committed to serving the community. This year, we looked beyond traditional mobility and launched MoveFWD, a Workforce Collaborative of Central Texas. The goal of the program is twofold: address the labor shortage in the roadway construction and customer service industries, while helping disadvantaged workers in Travis and Williamson counties achieve life-changing, long-term employment, and career-building opportunities.

We've partnered with Austin Community College, City of Austin, Goodwill, Texas Department of Criminal Justice Reentry and Integration, Travis County, and Workforce Solutions to bring this program to fruition. Through a comprehensive approach that includes training, career counseling and social services support, MoveFWD helps people establish careers that provide job stability and benefits by assigning a career manager to connect them with the resources necessary to achieve economic independence and establish a better quality of life.



Jeffrey Travillion welcomes attendees at the MoveFWD kick-off.

“ The opportunities in the construction industry are **endless**. You can start as a roller hand and leave as a superintendent... if that's what you want. You just need to **have the drive and motivation** to move up. ”



*Joshua Meltabarger,  
Earthwork Foreman, Colorado River Constructors*

“ I believe that Travis County residents can be **better prepared for local jobs** when we provide a one-stop-shop for **learning career and life skills**. I want to commend the Central Texas Regional Mobility Authority for bringing this initiative to fruition. Their MoveFWD program has the potential to be an **important tool to fight poverty** and help those in need. ”

*Jeffrey Travillion,  
Travis County Commissioner, Precinct One*





## A TOLL-FREE RIDE FOR VETERANS

The Mobility Authority's Qualified Veteran Discount Program, which took effect November 1, 2018, allows qualified veterans to drive toll-free on 183A Toll, 290 Toll and the 71 Toll Lane.

We are proud to offer this program in an effort to recognize the service of the brave men and women who have served our county. Qualified veterans include disabled veterans, Purple Heart recipients, and Legion of Valor or Medal of Honor recipients. Visit [www.MobilityAuthority.com/veterans](http://www.MobilityAuthority.com/veterans) for more information or to register.

## LOOKING BEYOND THE SINGLE-OCCUPANCY VEHICLE

The cost of commuting alone in a personal vehicle is often higher than we realize, considering vehicle maintenance, registration, car payment, insurance, fuel, and parking. In addition, there is the cost of time lost and diminished quality of life. That's why we've partnered with Commute Solutions and Capital Metro to encourage drivers to look beyond the single-occupancy vehicle and tackle Transportation Demand Management (TDM).



### Commute Solutions

Commute Solutions is a regional TDM program that promotes greater efficiency and use of existing roadways to achieve greater mobility.

By discouraging less-efficient travel behavior like single-occupant vehicle use, peak-hour travel, and travel on high-congestion roadways, the program encourages more-efficient behavior such as of public transit, carpools, vanpools, walking, biking, teleworking, alternative work schedules, and more.



### Get on Board with Capital Metro

Our partnership with Capital Metro whereby transit has toll-free access to our facilities has led to increased transit ridership, fewer single-occupancy vehicles on the roads, and new transit routes across the region. On MoPac alone, Express Bus ridership has climbed 73 percent in the first year of Express Lane operations.

## DID YOU KNOW?

Commute Solutions' Commute Cost Calculator can calculate the **true cost** of your commute. Visit [MobilityAuthority.com](http://MobilityAuthority.com), click on the resources tab and select commuting costs.



## FORWARD MOMENTUM DRIVES US

Taking stock of who we are as an agency and the direction we're heading is something we continually keep top of mind. But this year we took a deeper dive to refresh how we define our organization and paralleled our goals and strategies with our projects and initiatives. We recognize that a regional focus requires alignment with the Central Texas transportation landscape, and that our efforts must be considered within the context of all the challenges, risks, and opportunities we collectively face as a region.

We're committed to moving Central Texas forward by staying true to our mission and demonstrating our core values in all we do.

## OUR CORE VALUES

**TRANSPARENCY** | We are committed to open, honest and fair business practices; visibility into our processes; and accessibility of information to the general public.

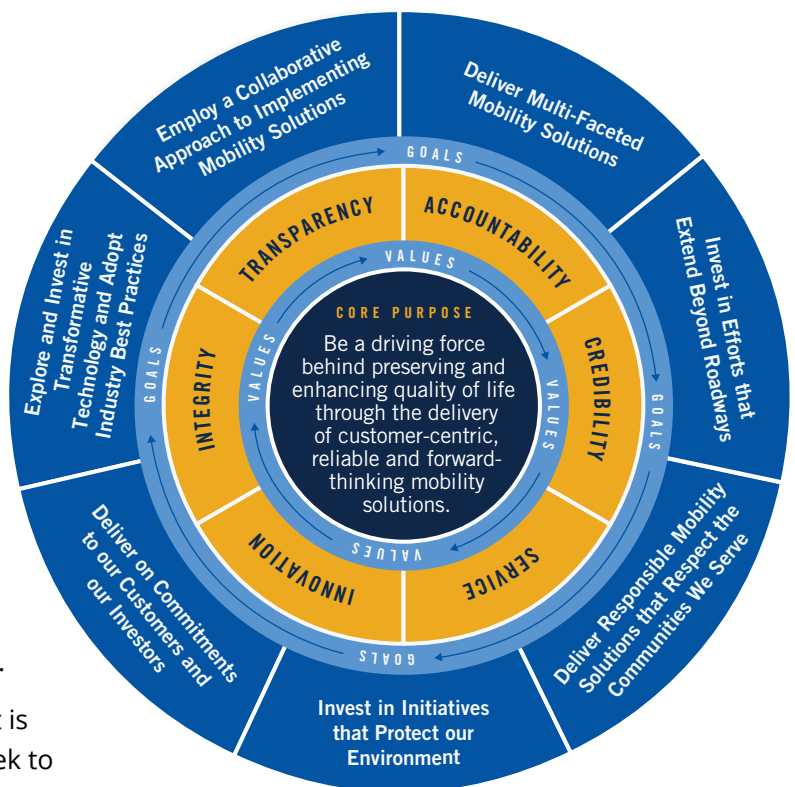
**ACCOUNTABILITY** | We are fiscally responsible and follow through on commitments to our founding counties, investors, customers, constituents, and partners.

**CREDIBILITY** | We work to earn and sustain public trust through dependable public service, two-way communication, partner collaboration, and fair and appropriate solutions.

**SERVICE** | We provide customer service that is defined by efficiency and responsiveness. We seek to improve quality of life for our users by acting as environmental stewards and supporting our community.

**INTEGRITY** | We are committed to honest communications, transparent transactions, ethical decisions, and forthright behavior.

**INNOVATION** | We have an entrepreneurial spirit that nurtures new ideas and embraces opportunities to implement transformative technology.



## 2018 FINANCIAL STATEMENTS

The Mobility Authority's financial statements are prepared in accordance with Generally Accepted Accounting Principles (GAAP) as applied to government units on an accrual basis. To view the audited Financial Statements and Management Discussion and Analysis, please visit [MobilityAuthority.com/business/finance](http://MobilityAuthority.com/business/finance).

### STATEMENTS OF NET POSITION JUNE 30, 2018 AND 2017

	2018	2017
<b>Current Assets:</b>		
Unrestricted:		
Cash and cash equivalents	\$ 49,687,164	\$ 903,311
Investments	35,008,355	67,774,818
Due from other governments	4,336,907	17,083,930
Accrued interest receivable	192,484	325,529
Prepaid expenses and other assets	46,518	37,999
<b>Total unrestricted</b>	<u>89,271,428</u>	<u>86,125,587</u>
Restricted:		
Cash and cash equivalents	92,822,518	118,725,139
<b>Total restricted</b>	<u>92,822,518</u>	<u>118,725,139</u>
<b>Total current assets</b>	<u>182,093,946</u>	<u>204,850,726</u>
<b>Noncurrent assets:</b>		
Restricted assets:		
Cash and cash equivalents	26,661,063	81,632,324
Investments	177,722,684	227,597,046
<b>Total restricted assets</b>	<u>204,383,747</u>	<u>309,229,370</u>
Pension asset	826,397	355,139
Total capital assets, net	1,673,629,024	1,491,481,738
<b>Total assets</b>	<u>2,060,933,114</u>	<u>2,005,916,973</u>
Total deferred outflows of resources	108,056,556	109,741,671
<b>Total assets and deferred outflows of resources</b>	<u>\$ 2,168,989,670</u>	<u>\$ 2,115,658,644</u>
<b>Current liabilities:</b>		
Payable from current assets:		
Accounts payable	\$ 1,079,771	\$ 1,838,473
Due to other governments	4,073,939	1,672,933
Accrued expenses	584,371	413,542
<b>Total payable from current assets</b>	<u>5,738,081</u>	<u>3,924,948</u>
Payable from restricted current assets:		
Construction accounts payable	45,136,616	73,481,537
CAMPO RIF payable	2,000,000	—
Accrued interest payable	25,942,463	25,975,163
Bonds, notes payable and other obligations, current portion	7,425,000	6,950,000
Unearned revenue	12,318,439	12,318,439
<b>Total payable from restricted current assets</b>	<u>92,822,518</u>	<u>118,725,139</u>
<b>Total current liabilities</b>	<u>98,560,599</u>	<u>122,650,087</u>
<b>Noncurrent liabilities:</b>		
Unearned revenue	—	—
Notes payable, net of current portion	—	1,805,000
Revenue bonds payable and other obligations, net of current portion	1,433,999,854	1,355,761,123
<b>Total noncurrent liabilities</b>	<u>1,433,999,854</u>	<u>1,357,566,123</u>
<b>Total liabilities</b>	<u>1,532,560,453</u>	<u>1,480,216,210</u>
Total deferred inflows of resources	278,184	286,449
<b>Total liabilities and deferred inflows of resources</b>	<u>1,532,838,637</u>	<u>1,480,502,659</u>
<b>Net position:</b>		
Net Investment in capital assets	447,015,053	436,282,193
Restricted for debt service	106,764,024	141,067,986
Unrestricted	82,371,956	57,805,806
<b>Total net position</b>	<u>636,151,033</u>	<u>635,155,985</u>
<b>Total liabilities and net position</b>	<u>\$ 2,168,989,670</u>	<u>\$ 2,115,658,644</u>

See notes to financial statements at [www.MobilityAuthority.com/business/finance](http://www.MobilityAuthority.com/business/finance)

# DID YOU KNOW?

Our senior debt credit rating was recently **upgraded by Moody's to BAA1 from BAA2**. In addition, **S&P upgraded us to A-**. These ratings equate to **millions of dollars in savings** over life of the bonds that finance our projects.

## 2018 FINANCIAL STATEMENTS

### STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION - YEARS ENDED JUNE 30, 2018 AND 2017

	2018	2017
Operating revenues:		
Tolls	\$ 91,491,730	\$ 75,651,364
Grant proceeds and other operating	681,812	1,568,891
<b>Total operating revenues</b>	<u>92,173,542</u>	<u>77,220,255</u>
Operating expenses:		
Salaries and wages	4,871,271	4,337,946
Toll contractual services	12,258,054	8,356,483
Professional services	3,167,349	2,370,921
General and administrative	8,259,628	7,806,640
Depreciation and amortization	28,045,493	22,099,071
<b>Total operating expenses</b>	<u>56,601,795</u>	<u>44,971,061</u>
<b>Operating income</b>	<u>35,571,747</u>	<u>32,249,194</u>
Nonoperating revenues (expenses):		
Interest income	2,541,537	847,178
Financing expense	(226,753)	(1,358,618)
CAMPO RIF payment	(2,000,000)	—
Interest expense, net of interest capitalized	(34,908,809)	(31,949,097)
<b>Total nonoperating revenues (expenses), net</b>	<u>(34,594,025)</u>	<u>(32,460,537)</u>
<b>Change in net position before capital grants and contributions</b>	<u>977,722</u>	<u>(211,343)</u>
TxDOT capital grants and contributions, net	17,326	168,607,570
<b>Change in net position</b>	<u>995,048</u>	<u>168,396,227</u>
Total net position at beginning of year	<u>635,155,985</u>	<u>466,759,758</u>
Total net position at end of year	<u>\$ 636,151,033</u>	<u>\$ 635,155,985</u>

See notes to financial statements at [www.MobilityAuthority.com/business/finance](http://www.MobilityAuthority.com/business/finance)

## 2018 FINANCIAL STATEMENTS

### STATEMENTS OF CASH FLOWS - YEARS ENDED JUNE 30, 2018 AND 2017

	2018	2017
Cash flows from operating activities:		
Receipts from toll fees	\$ 91,130,996	\$ 73,772,971
Receipts from grants and other income	681,812	1,568,891
Payments to vendors	(22,051,246)	(17,059,484)
Payments to employees	(4,789,619)	(4,258,810)
<b>Net cash flows provided by operating activities</b>	<u>64,971,943</u>	<u>54,023,568</u>
Cash flows from capital and related financing activities:		
Proceeds from notes payable and other obligations	90,521,885	49,636,149
Payments on revenue bonds issuance	—	(3,855,854)
Payments on interest	(54,324,611)	(45,132,276)
Payments on bonds	(9,403,471)	(6,425,000)
Purchase of capital assets	(302,647)	(2,260,579)
Payments for construction in progress	(240,014,400)	(206,701,520)
Proceeds from capital grants	28,679,062	100,753,583
Proceeds from contributed capital	—	4,500,000
<b>Net cash flows used in capital and related financing activities</b>	<u>(184,844,182)</u>	<u>(109,485,497)</u>
Cash flows from investing activities:		
Interest income, gross of capitalized interest	5,083,086	3,170,825
Purchase of investments	(178,465,748)	(285,516,658)
Proceeds from sale or maturity of investments	261,164,872	213,417,984
<b>Net cash flows provided by (used in) investing activities</b>	<u>87,782,210</u>	<u>(68,927,849)</u>
<b>Net decrease in cash and cash equivalents</b>	(32,090,029)	(124,389,778)
Cash and cash equivalents at beginning of year	<u>201,260,774</u>	<u>325,650,552</u>
Cash and cash equivalents at end of year	<u>\$ 169,170,745</u>	<u>\$ 201,260,774</u>
Reconciliation of change in net position to net cash provided by operating activities:		
Operating income	\$ 35,571,747	\$ 32,249,194
Adjustments to reconcile change in net position to net cash provided by operating activities:		
Depreciation and amortization	28,045,493	22,099,071
Changes in assets and liabilities:		
Increase in due from other governments	(391,555)	(1,926,383)
(Increase) decrease in prepaid expenses and other assets	(8,519)	69,602
Increase (decrease) in accounts payable	(727,881)	555,604
Increase in accrued expenses	2,541,014	946,663
Increase in pension asset	(471,258)	(153,116)
Increase in deferred outflow of resources	421,167	68,501
Increase (decrease) in deferred inflow of resources	(8,265)	114,432
<b>Total adjustments</b>	<u>29,400,196</u>	<u>21,774,374</u>
<b>Net cash flows provided by operating activities</b>	<u>\$ 64,971,943</u>	<u>\$ 54,023,568</u>
Reconciliation of cash and cash equivalents:		
Unrestricted cash and cash equivalents	\$ 49,687,164	\$ 903,311
Restricted cash and cash equivalents:		
Current	92,822,518	118,725,139
Noncurrent	26,661,063	81,632,324
<b>Total</b>	<u>\$ 169,170,745</u>	<u>\$ 201,260,774</u>

See notes to financial statements at [www.MobilityAuthority.com/business/finance](http://www.MobilityAuthority.com/business/finance)

## 2018 BOARD OF DIRECTORS

We are governed by a seven-member board of directors responsible for setting policies, identifying priority projects, and ensuring the agency is operated in an efficient and effective manner. Our volunteer members are appointed by our founding counties and serve two-year terms. Our chairman is appointed by the governor.



**Ray A. Wilkerson**  
Chairman  
Gubernatorial Appointee, 2009



**Nikelle S. Meade**  
Vice-Chair  
Travis County Appointee, 2012



**David Singleton**  
Board Treasurer  
Williamson County Appointee, 2003



**Mark Ayotte**  
Board Secretary  
Williamson County Appointee, 2017



**David B. Armbrust**  
Board Member  
Travis County Appointee, 2012



**John Langmore**  
Board Member  
Travis County Appointee, 2018



**Frank Leffingwell**  
Board Member  
Williamson County Appointee, 2018



**Mike Heiligenstein**  
Executive Director, 2003



# REGIONAL MAP





CENTRAL TEXAS REGIONAL  
MOBILITY AUTHORITY

## ABOUT

# THE CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY

The Central Texas Regional Mobility Authority is an independent government agency created in 2002 to improve the transportation system in Williamson and Travis counties. Our mission is to implement innovative, multimodal transportation solutions that reduce congestion and create transportation choices that enhance quality of life and economic vitality. The Mobility Authority operates 183A Toll in Williamson County, 290 Toll in east Austin, the 71 Toll Lane in east Austin and the MoPac Express Lane in central Austin. The Mobility Authority is also constructing tolled lanes on SH 45SW in south Austin, and tolled and untolled improvements on 183 South in east Austin. For more information about the Mobility Authority, visit [www.MobilityAuthority.com](http://www.MobilityAuthority.com)

[MOBILITY AUTHORITY.COM](http://www.MobilityAuthority.com)





CENTRAL TEXAS REGIONAL  
**MOBILITY AUTHORITY**

3300 North IH-35, Suite 300  
Austin, TX 78705

[MOBILITYAUTHORITY.COM](http://MOBILITYAUTHORITY.COM)

WHAT DRIVES *YOU,*

DRIVES *US.*

**GENERAL MEETING OF THE BOARD OF DIRECTORS  
OF THE  
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY  
RESOLUTION NO. 19-006**

**ADOPTING THE MOBILITY AUTHORITY ANNUAL REPORT FOR 2018**

WHEREAS, pursuant to Texas Transportation Code Section 370.261 and CTRMA Policy Code Section 101.013(b), the Central Texas Regional Mobility Authority is required to prepare an Annual Report on its activities during the preceding year and describing all turnpike revenue bond issuances anticipated for the coming year, the financial condition of the authority, all project schedules, and the status of the Mobility Authority's performance under the most recent Strategic Plan; and

WHEREAS, each Annual Report must be submitted to the Board for review, approval and adoption; and

WHEREAS, the Mobility Authority is required to file the 2018 CTRMA Annual Report with the Commissioners Courts of Travis County and Williamson County not later than March 31, 2019; and


WHEREAS, the Executive Director provided a draft of the proposed 2018 CTRMA Annual Report for the Board's review and consideration at the Mobility Authority's February 27, 2019 Board Meeting, a copy of which is attached hereto as Exhibit A; and

WHEREAS, the Executive Director recommends that the Board approve and adopt the proposed 2018 CTRMA Annual Report attached hereto as Exhibit A.


NOW, THEREFORE, BE IT RESOLVED, that the Board hereby approves and adopts the 2018 CTRMA Annual Report attached hereto as Exhibit A, and directs the Executive Director to file the 2018 CTRMA Annual Report with the Commissioners Courts of Travis County and Williamson County not later than March 31, 2019.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 27<sup>th</sup> day of February 2019.

Submitted and reviewed by:

  
\_\_\_\_\_  
Geoff Petrov, General Counsel

Approved:

  
\_\_\_\_\_  
Ray A. Wilkerson  
Chairman, Board of Directors

**GENERAL MEETING OF THE BOARD OF DIRECTORS  
OF THE  
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**

**RESOLUTION NO. 19-007**

**RESOLUTION AUTHORIZING THE ISSUANCE, SALE AND DELIVERY OF CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY SUBORDINATE LIEN REVENUE BOND, TAXABLE SERIES 2019 (THE "2019 TIFIA BOND"), IN ACCORDANCE WITH SPECIFIED PARAMETERS; APPROVING THE FORM OF, AND AUTHORIZING THE EXECUTION AND DELIVERY OF, THE TWENTIETH SUPPLEMENTAL TRUST INDENTURE; APPOINTING AN AUTHORIZED OFFICER TO AUTHORIZE, APPROVE AND DETERMINE CERTAIN TERMS AND PROVISIONS OF THE 2019 TIFIA BOND AND THE FORM OF THE 2019 TIFIA BOND, APPROVE AND AUTHORIZE THE TERMS AND CONDITIONS OF A LOAN AGREEMENT PERTAINING TO THE 2019 TIFIA BOND AND TO EXECUTE AND DELIVER SUCH LOAN AGREEMENT; AUTHORIZING THE EXECUTION AND DELIVERY OF DOCUMENTS AND INSTRUMENTS IN CONNECTION WITH THE FOREGOING; AUTHORIZING THE EXECUTION AND DELIVERY OF ANY AND ALL DOCUMENTS, CERTIFICATES, AGREEMENTS, CLOSING INSTRUCTIONS, AND INSTRUMENTS NECESSARY OR DESIRABLE TO BE EXECUTED AND DELIVERED IN CONNECTION WITH THE FOREGOING AND ENACTING OTHER PROVISIONS RELATING TO THE SUBJECT;**

WHEREAS, the Central Texas Regional Mobility Authority (the "Authority") has been created and organized pursuant to and in accordance with the provisions of Chapter 361, Texas Transportation Code, and operates pursuant to the Constitution and laws of the State, including, particularly, Chapter 370, Texas Transportation Code (the "Act"), for the purposes of constructing, maintaining and operating transportation projects, including turnpike projects, in Travis and Williamson Counties, Texas; and

WHEREAS, pursuant to the Act and other applicable law, the Authority is authorized to: (i) study, evaluate, design, finance, acquire, construct, maintain, repair and operate transportation projects (as defined in the Act), individually or as a system (as defined in the Act); (ii) issue bonds, certificates, notes or other obligations payable from the revenues of a transportation project or system, including tolls, fees, fares or other charges, to pay all or part of the cost of a transportation project and to refund any bonds previously issued for a transportation project; and (iii) impose tolls, fees, fares or other charges for the use of each of its transportation projects and the different parts or sections of each of its transportation projects; and

WHEREAS, pursuant to the Act and other applicable laws, the Authority is authorized to issue revenue bonds, notes, certificates or other obligations for the purposes of (i) financing and refinancing all or a portion of the cost of the acquisition, construction, improvement, extension or expansion of one or more turnpike projects (as defined in the Act), (ii) refunding, defeasing and redeeming any such obligations previously issued by the Authority and (iii) paying the expenses of issuing such revenue bonds, notes, certificates or other obligations; and

WHEREAS, the Authority has previously executed and delivered that certain Master Trust Indenture (the “Master Indenture”), between the Authority and Regions Bank, as successor in trust to JPMorgan Chase Bank, National Association, as trustee (the “Trustee”), providing for the issuance from time to time by the Authority of one or more series of its revenue obligations (collectively, the “Obligations”), as supplemented by that certain (i) First Supplemental Trust Indenture (the “First Supplement”), Second Supplemental Trust Indenture (the “Second Supplement”), and Third Supplemental Trust Indenture (the “Third Supplement”), each between the Authority and the Trustee and dated as of February 1, 2005; (ii) Fourth Supplemental Trust Indenture (the “Fourth Supplement”), between the Authority and the Trustee and dated as of May 1, 2009; (iii) Fifth Supplemental Trust Indenture (the “Fifth Supplement”) and Sixth Supplemental Trust Indenture (the “Sixth Supplement”), each between the Authority and the Trustee and dated as of March 1, 2010; (iv) Seventh Supplemental Trust Indenture (the “Seventh Supplement”), between the Authority and the Trustee and dated as of August 1, 2010; (v) Eighth Supplemental Trust Indenture (the “Eighth Supplement”) and the Ninth Supplemental Trust Indenture (the “Ninth Supplement”), each between the Authority and the Trustee and dated as of June 1, 2011; (vi) Tenth Supplemental Trust Indenture (the “Tenth Supplement”) and Eleventh Supplemental Trust Indenture (the “Eleventh Supplement”), each between the Authority and the Trustee and dated as of May 1, 2013; (vii) Twelfth Supplemental Trust Indenture (the “Twelfth Supplement”), Thirteenth Supplemental Trust Indenture (the “Thirteenth Supplement”), Fourteenth Supplemental Trust Indenture (the “Fourteenth Supplement”) and Fifteenth Supplemental Trust Indenture (the “Fifteenth Supplement”), each between the Authority and the Trustee and dated as of November 1, 2015; (viii) Sixteenth Supplemental Trust Indenture (the “Sixteenth Supplement”), between the Authority and the Trustee and dated as of June 1, 2016; (ix) Seventeenth Supplemental Trust Indenture (the “Seventeenth Supplement”) between the Authority and the Trustee and dated as of August 1, 2016; and (x) the Eighteenth Supplemental Trust Indenture (the “Eighteenth Supplement”) and the Nineteenth Supplemental Trust Indenture (the “Nineteenth Supplement”), each between the Authority and the Trustee and dated as of November 1, 2018 (the Master Indenture, as supplemented by the First Supplement, the Second Supplement, the Third Supplement, the Fourth Supplement, the Fifth Supplement, the Sixth Supplement, the Seventh Supplement, the Eighth Supplement, the Ninth Supplement, the Tenth Supplement, the Eleventh Supplement, the Twelfth Supplement, the Thirteenth Supplement, the Fourteenth Supplement, the Fifteenth Supplement, the Sixteenth Supplement, the Seventeenth Supplement, the Eighteenth Supplement and the Nineteenth Supplement is referred to herein as the “Indenture”); and

WHEREAS, Sections 301, 302, 706, 708, 1001 and 1002 of the Master Indenture authorize the Authority and the Trustee to execute and deliver supplemental indentures authorizing the issuance of Obligations, including Additional Subordinate Lien Obligations, and to include in such supplemental indentures the terms of such Additional Subordinate Lien Obligations and any other matters and things relative to the issuance of such Obligations that are not inconsistent with or in conflict with the Indenture, to add to the covenants of the Authority, and to pledge other moneys, securities or funds as part of the Trust Estate; and

WHEREAS, pursuant to the Act, the Board of Directors (the “Board”) of the Authority has determined to issue its Additional Subordinate Lien Obligations designated as the Authority’s Subordinate Lien Revenue Bond, Taxable Series 2019 (the “2019 TIFIA Bond”) pursuant to the Master Indenture and a Twentieth Supplemental Trust Indenture (the “Twentieth Supplement”),

dated as of the date specified in the Award Certificate (as hereinafter defined), and being between the Trustee and the Authority, for the purposes specified herein, all under and in accordance with the Constitution and the laws of the State; and

WHEREAS, in connection with the issuance and delivery of the 2019 TIFIA Bond, the Board further desires to authorize the execution and delivery of a TIFIA Loan Agreement (the "TIFIA Loan Agreement"), between the Authority and the United States Department of Transportation ("USDOT"), in substantially the form attached as Exhibit A to the Twentieth Supplement; and

WHEREAS, the Board has been presented with and examined the proposed form of the Twentieth Supplement and the Board finds that the form and substance of such document is satisfactory and the recitals and findings contained therein are true, correct and complete, and hereby adopts and incorporates by reference such recitals and findings as if set forth in full in this Resolution, and finds that it is in the best interest of the public and the Authority to issue the 2019 TIFIA Bond and to authorize the execution and delivery of such documents; and

WHEREAS, the Board now desires to appoint one or more officers of the Authority to act on behalf of the Authority to determine the final terms and conditions of the 2019 TIFIA Bond, as provided herein, and to make such determinations and findings as may be required by the Twentieth Supplement and to carry out the purposes of this Resolution and execute an Award Certificate setting forth such determinations and authorizing and approving all other matters relating to the issuance, sale and delivery of the 2019 TIFIA Bond; and

WHEREAS, the Board desires to authorize the execution and delivery of the Twentieth Supplement, providing for the issuance of and setting forth the terms and provisions relating to the 2019 TIFIA Bond, to be issued as an Additional Subordinate Lien Obligation, and the pledge and security therefor, in the substantially final form of the Twentieth Supplement; and

WHEREAS, the 2019 TIFIA Bond shall be issued as an Additional Subordinate Lien Obligation and Long-Term Obligation pursuant to and in accordance with the provisions of the Master Indenture and the Twentieth Supplement; and

WHEREAS, the Board desires to provide for the issuance of the 2019 TIFIA Bond in accordance with the Master Indenture and the Twentieth Supplement, and to authorize the execution and delivery of the Twentieth Supplement and such certificates, agreements, instruction letters and other instruments as may be necessary or desirable in connection therewith; and

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY THAT:

## ARTICLE I

### FINDINGS AND DETERMINATIONS

Section 1.1. Findings and Determinations. (a) The findings and determinations set forth in the preamble hereof are hereby incorporated herein for all purposes as though such findings and determinations were set forth in full herein. Capitalized terms used herein and not otherwise

defined herein shall have the meanings assigned thereto in the Master Indenture and the Twentieth Supplement.

(b) The Board has found and determined that the 2019 TIFIA Bond may be issued as an Additional Subordinate Lien Obligation as designated by the Authorized Officer (as defined herein) in the Award Certificate (the "Award Certificate"), and as a Long-Term Obligation.

(c) It is officially found, determined and declared that the meeting at which this Resolution has been adopted was open to the public and public notice of the time, place and subject matter of the public business to be considered and acted upon at said meeting, including this Resolution was given, all as required by the applicable provisions of Chapter 551, Texas Government Code, as amended.

(d) The Board hereby finds and determines that the issuance of the 2019 TIFIA Bond is in the best interest of the Authority.

## ARTICLE II

### ISSUANCE OF 2019 TIFIA BOND; APPROVAL OF DOCUMENTS

Section 2.1. Issuance, Execution and Delivery of 2019 TIFIA Bond; Approval of the Twentieth Supplement. The Authority hereby authorizes, approves and directs the issuance of the 2019 TIFIA Bond in accordance with the terms of this Resolution, the Master Indenture and the Twentieth Supplement, a draft of which was presented to the Authority and its counsel, the form, terms and provisions of such Twentieth Supplement being hereby authorized and approved with such changes as may be approved by the Authorized Officer, such approval to be evidenced by the execution thereof. The Authorized Officer is hereby authorized to execute the Twentieth Supplement and the Secretary is hereby authorized to attest the signature of the Authorized Officer.

Section 2.2. The Issuance of the 2019 TIFIA Bond. The issuance, execution and delivery of the 2019 TIFIA Bond, which shall be issued in the aggregate principal amount and bearing interest in accordance with the terms of the Twentieth Supplement, all as determined by the Authorized Officer and set forth in the Award Certificate, to pay the Costs of improvements and extensions to the 290 East Project (as defined in the Twentieth Supplement), including, without limitation, the design and construction of two tolled direct connectors at the State Highway 130 interchange, and the refinancing of Costs funded with the proceeds of the Authority's Subordinate Lien Revenue Bond Anticipation Notes, Series 2018 (the "Series 2018 BANs"), all pursuant to and in accordance with the Master Indenture and the Twentieth Supplement, are hereby authorized and approved. The Award Certificate may make reference to the TIFIA Loan Agreement described in Section 2.3 relating to the 2019 TIFIA Bond for any of the terms and provisions of the 2019 TIFIA Bond.

Section 2.3. Approval and Execution of TIFIA Loan Agreement. The terms and provisions of the TIFIA Loan Agreement, in substantially the form presented at this meeting, are hereby authorized and approved with such changes as may be approved by the Authorized Officer,

such approval to be evidenced by the execution thereof. The Authorized Officer is hereby authorized to execute and deliver the TIFIA Loan Agreement.

### ARTICLE III

#### APPOINTMENT OF AUTHORIZED OFFICER; DELEGATION OF AUTHORITY

Section 3.1. Appointment of Authorized Officer. The Board hereby appoints the Chairman of the Board, the Executive Director and the Chief Financial Officer, severally and each of them, to act as an authorized officer (the "Authorized Officer") on behalf of the Board and to perform all acts authorized and required of an Authorized Officer set forth in this Resolution and the Twentieth Supplement. The Authorized Officer is hereby authorized and directed to execute the Award Certificate setting forth the information authorized to be stated therein pursuant to this Resolution and required to be stated therein pursuant to the Twentieth Supplement.

Section 3.2. Delegation of Authority. (a) The Board hereby authorizes and directs that the Authorized Officer act on behalf of the Authority to determine the final terms and conditions of the 2019 TIFIA Bond, the dated date for the Twentieth Supplement, the dated date for the 2019 TIFIA Bond, the price at which the 2019 TIFIA Bond will be sold, any different or additional designation or title of the 2019 TIFIA Bond, the aggregate principal amount and maturity dates for the 2019 TIFIA Bond, the per annum interest rates for the 2019 TIFIA Bond, the redemption and prepayment provisions, dates and prices for the 2019 TIFIA Bond, the final form of the 2019 TIFIA Bond and such other terms and provisions that shall be applicable to the 2019 TIFIA Bond, to approve the final terms and provisions of the Twentieth Supplement and the TIFIA Loan Agreement, and to make such findings and determinations as are otherwise authorized herein or as may be required by the Twentieth Supplement and the TIFIA Loan Agreement to carry out the purposes of this Resolution and to execute the Award Certificate setting forth such determinations, such other matters as authorized herein, and authorizing and approving all other matters relating to the issuance, sale and delivery of the 2019 TIFIA Bond; provided, that the following conditions can be satisfied:

- (i) the aggregate principal amount of the 2019 TIFIA Bond to be issued shall not exceed \$55,000,000; and
- (ii) the 2019 TIFIA Bond shall not bear interest at an initial rate greater than 5.0%;

all based on the terms, conditions and provisions negotiated by the Authority for the 2019 TIFIA Bond.

Section 3.3. Limitation on Delegation of Authority. The authority granted to the Authorized Officer under Article III of this Resolution shall expire at 5:00 p.m. Central Time on February 25, 2020, unless otherwise extended by the Board by separate Resolution. If an Award Certificate is executed prior to 5:00 p.m. Central Time on February 25, 2020, the 2019 TIFIA Bond may be delivered to USDOT after such date.



## ARTICLE IV

### APPROVAL OF SALE OF 2019 TIFIA BOND

Section 4.1. Approval of Execution and Delivery of 2019 TIFIA Bond. The execution and delivery of the 2019 TIFIA Bond to USDOT in the aggregate principal amount, bearing interest at the rates, and with the terms and provisions set forth in the Twentieth Supplement and the TIFIA Loan Agreement, as determined by the Authorized Officer, is hereby authorized and approved. The Authorized Officer is hereby authorized to approve the final terms and provisions of the Twentieth Supplement and the TIFIA Loan Agreement and to execute and deliver the Twentieth Supplement and the TIFIA Loan Agreement on behalf of the Authority, such approval to be conclusively evidenced by the execution thereof.

Section 4.2. Best Terms Available. The Authorized Officer is hereby authorized to make findings in the Award Certificate to the effect that the prices, interest rates and other terms and provisions of the 2019 TIFIA Bond, as negotiated by the Authority, are the best terms reasonably available and advantageous to the Authority, as determined by the Authorized Officer.

## ARTICLE V

### USE AND APPLICATION OF PROCEEDS; LETTERS OF INSTRUCTION; POWER TO REVISE DOCUMENTS

Section 5.1. Use and Application of Proceeds; Letters of Instruction. The proceeds from the sale of the 2019 TIFIA Bond shall be used for the purposes set forth in and in accordance with the terms and provisions of the Twentieth Supplement and the Award Certificate. The deposit and application of the proceeds from the sale of the 2019 TIFIA Bond shall be set forth in a Letter of Instruction of the Authority executed by the Authorized Officer.

Section 5.2. Execution and Delivery of Other Documents. The Authorized Officer is hereby authorized and directed to execute and deliver from time to time and on an ongoing basis such other documents and agreements, including amendments, modifications, supplements or consents to existing agreements (including any agreements with the Texas Department of Transportation and the United States Department of Transportation), assignments, certificates, instruments, releases, financing statements, written requests, filings with the Internal Revenue Service and letters of instruction, whether or not mentioned herein, as may be necessary or convenient to carry out or assist in carrying out the purposes of this Resolution and to comply with the requirements of the Indenture, the Twentieth Supplement, the Award Certificate and the TIFIA Loan Agreement.

Section 5.3. Power to Revise Form of Documents. Notwithstanding any other provision of this Resolution, the Authorized Officer is hereby authorized to make or approve such revisions in the form of the documents presented at this meeting and any other document, certificate or agreement pertaining to the issuance and delivery of the 2019 TIFIA Bond in accordance with the terms of the Master Indenture and the Twentieth Supplement as, in the judgment of such person, may be necessary or convenient to carry out or assist in carrying out the purposes of this Resolution, such approval to be evidenced by the execution thereof.

## ARTICLE VI

### APPROVAL AND RATIFICATION OF CERTAIN ACTIONS

Section 6.1. Approval of Submission to the Attorney General of Texas. The Authority's Bond Counsel is hereby authorized and directed to submit to the Attorney General, for his approval, a transcript of the legal proceedings relating to the issuance, sale and delivery of the 2019 TIFIA Bond as required by law, and to the Comptroller of Public Accounts of the State of Texas for registration. In connection with the submission of the record of proceedings for the 2019 TIFIA Bond to the Attorney General of the State of Texas for examination and approval of such 2019 TIFIA Bond, the Authorized Officer is hereby authorized and directed to issue one or more checks of the Authority payable to the Attorney General of the State of Texas as a nonrefundable examination fee in the amount required by Chapter 1202, Texas Government Code. The initial 2019 TIFIA Bond shall be delivered to the Trustee for delivery to USDOT upon satisfaction of the requirements of the Indenture and the Twentieth Supplement.

Section 6.2. Certification of the Minutes and Records. The Secretary and any Assistant Secretary of the Board are each hereby severally authorized to certify and authenticate minutes and other records on behalf of the Authority for the issuance of the 2019 TIFIA Bond and for all other Authority activities.

Section 6.3. Ratifying Other Actions. All other actions taken or to be taken by the Executive Director, the Chief Financial Officer, the Authorized Officer, the Controller and the Authority's staff in connection with the issuance of the 2019 TIFIA Bond are hereby approved, ratified and confirmed.

Section 6.4. Authority to Invest Funds. The Executive Director, the Chief Financial Officer and the Controller are each hereby severally authorized on an ongoing basis to undertake all appropriate actions and to execute such documents, agreements or instruments as they deem necessary or desirable under the Indenture and the Twentieth Supplement with respect to the investment of proceeds of the 2019 TIFIA Bond and other funds of the Authority.

Section 6.5. Federal Tax Considerations. In addition to any other authority provided under this Resolution, each Authorized Officer is hereby further expressly authorized, acting for and on behalf of the Authority, to determine and designate in the Award Certificate whether the 2019 TIFIA Bond will be issued as a taxable bond or a tax-exempt bond for federal income tax purposes and to make all appropriate elections under the Internal Revenue Code of 1986, as amended. Each Authorized Officer is hereby further expressly authorized and empowered from time to time and at any time to perform all such acts and things deemed necessary or desirable and to execute and deliver any agreements, certificates, documents or other instruments, whether or not herein mentioned, to carry out the terms and provisions of this section, including but not limited to, the preparation and making of any filings with the Internal Revenue Service.

ARTICLE VII

GENERAL PROVISIONS

Section 7.1. Changes to Resolution. The Executive Director, the Chief Financial Officer and the Authorized Officer, and either of them, singly and individually, are hereby authorized to make such changes to the text of this Resolution as may be necessary or desirable to carry out the purposes hereof or to comply with the requirements of the Attorney General of Texas in connection with the issuance of the 2019 TIFIA Bond herein authorized.

Section 7.2. Effective Date. This Resolution shall be in full force and effect from and upon its adoption.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 27<sup>th</sup> day of February 2019.

Submitted and reviewed by:

Approved:

  
\_\_\_\_\_  
Geoff Petrov, General Counsel

  
\_\_\_\_\_  
Ray A. Willerson  
Chairman, Board of Directors

**Exhibit A**

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TWENTIETH SUPPLEMENTAL TRUST INDENTURE

BETWEEN

CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY

AND

REGIONS BANK, TRUSTEE

AUTHORIZING

SUBORDINATE LIEN REVENUE BOND,

TAXABLE SERIES 2019

Dated as of March 1, 2019

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## **TWENTIETH SUPPLEMENTAL TRUST INDENTURE**

THIS TWENTIETH SUPPLEMENTAL TRUST INDENTURE, dated as of March 1, 2019 (this “Supplemental Indenture” or “Twentieth Supplemental Indenture”), is made by and between the CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY (together with any successor to its rights, duties, and obligations hereunder, the “Authority”), a body politic and corporate and a political subdivision of the State of Texas (the “State”) duly created, organized and existing under the laws of the State, and REGIONS BANK, an Alabama state banking corporation, as successor in trust to JPMorgan Chase Bank, National Association, as trustee (together with any successor trustee hereunder, the “Trustee”). Capitalized terms used herein and not otherwise defined shall have the meaning as provided in Section 1.2 of this Supplemental Indenture.

### RECITALS

WHEREAS, the Authority has been created and organized pursuant to and in accordance with the provisions of Chapter 361, Texas Transportation Code, and operates pursuant to the Constitution and laws of the State, including, particularly, Chapter 370, Texas Transportation Code, as amended (the “Act”), for the purposes of constructing, maintaining and operating transportation projects in Travis and Williamson Counties, Texas; and

WHEREAS, pursuant to the Act and other applicable laws, the Authority is authorized to: (i) study, evaluate, design, finance, acquire, construct, maintain, repair and operate transportation projects (as defined in the Act), individually or as a system (as defined in the Act); and (ii) issue bonds, certificates, notes or other obligations payable from the revenues of a transportation project or system, including tolls, fees, fares or other charges, to pay all or part of the cost of a transportation project and to refund or refinance any bonds previously issued for a transportation project; and (iii) impose tolls, fees, fares or other charges for the use of each of its transportation projects and the different parts or sections of each of its transportation projects; and (iv) enter into this Supplemental Indenture for the purposes provided herein; and

WHEREAS, the Authority and the Trustee have executed and delivered the Master Indenture, providing for the issuance from time to time by the Authority of one or more series of its revenue obligations (collectively, the “Obligations”); and

WHEREAS, Section 1002 of the Master Indenture authorizes the Authority and the Trustee to execute and deliver a supplemental indenture, authorizing Obligations of a Series, to include any other matters and things relative to such Obligations which are not inconsistent with or contrary to the Master Indenture, to add to the covenants of the Authority, and to pledge other moneys, securities or funds as part of the Trust Estate; and

WHEREAS, pursuant to the Act and Chapter 1371, Texas Government Code (“Chapter 1371”), the Authority has previously issued and has outstanding its Subordinate Lien Revenue Bond Anticipation Notes, Series 2018 (the “Series 2018 BANs”); and

WHEREAS, pursuant to the authority granted in the Act, Chapter 1371 and other applicable laws, the Authority has determined to enter into the TIFIA Loan Agreement (as defined herein) for the purpose of financing a portion of the Eligible Project Costs (as defined in the TIFIA



Loan Agreement) of certain improvements and extensions to the 290 East Project, including without limitation, the design and construction of two tolled direct connectors at the State Highway 130 interchange (defined as the “Project” in the TIFIA Loan Agreement), and the refinancing of Eligible Project Costs funded with the proceeds of the Series 2018 BANs; and

WHEREAS, pursuant to the authority granted in the Act, the Authority has determined to authorize the issuance of the 2019 TIFIA Bond to evidence the obligation under the TIFIA Loan Agreement as a Subordinate Lien Obligation; and

WHEREAS, the Board hereby finds and determines that the issuance of the 2019 TIFIA Bond is in the best interest of the Authority; and

WHEREAS, pursuant to the Bond Resolution, the Authority has authorized the Authorized Officer to make such findings and determinations as may be required in connection with the issuance of the 2019 TIFIA Bond and to set forth such findings and determinations in the Award Certificate; and

WHEREAS, the execution and delivery of this Supplemental Indenture and the TIFIA Loan Agreement and the issuance of the 2019 TIFIA Bond have been in all respects duly and validly authorized by the Bond Resolution; and

WHEREAS, the Trustee has accepted the trusts created by the Master Indenture and this Supplemental Indenture and in evidence thereof has joined in the execution and delivery hereof; and

WHEREAS, except as provided herein, all acts and conditions and things required by the laws of the State to happen, exist and be performed precedent to execution and delivery of this Supplemental Indenture have happened, exist and have been performed as so required in order to make the Indenture, as supplemented by this Supplemental Indenture, a valid, binding and legal instrument for the security of the 2019 TIFIA Bond and a valid and binding agreement in accordance with its terms;

NOW, THEREFORE, in consideration of the premises, the acceptance by the Trustee of the trusts hereby created, the purchase and acceptance of the 2019 TIFIA Bond by the holder thereof, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and for the further purpose of fixing and declaring the terms and conditions upon which the 2019 TIFIA Bond is to be issued, authenticated, delivered and accepted by the Holder thereof, the Authority and the Trustee do hereby mutually covenant and agree, for the equal and proportionate benefit of the respective Holders from time to time of the Obligations, including the 2019 TIFIA Bond, as follows:

## **ARTICLE I.**

### **DEFINITIONS AND STATUTORY AUTHORITY**

Section 1.1. Supplemental Indenture. This Supplemental Indenture is supplemental to the Master Indenture and is adopted in accordance with Article III and Article X thereof.

Section 1.2. Definitions.

Unless the context shall require otherwise, all defined terms contained in the Master Indenture and the TIFIA Loan Agreement shall have the same meanings in this Supplemental Indenture as such defined terms are given in Section 101 of the Master Indenture and in the TIFIA Loan Agreement, as applicable.

As used in this Supplemental Indenture, unless the context shall otherwise require, the following terms shall have the following respective meanings:

“2019 TIFIA Bond” shall mean the Subordinate Lien Revenue Bond, Taxable Series 2019 authorized pursuant to this Supplemental Indenture and designated as such in the Award Certificate.

“Authorized Officer” shall mean the Chairman of the Board of Directors of the Authority, the Executive Director of the Authority and the Chief Financial Officer of the Authority, severally and each of them, as provided in the Bond Resolution.

“Award Certificate” means the Award Certificate executed and delivered by an Authorized Officer pursuant to Section 2.1 hereof in connection with the issuance and delivery of the 2019 TIFIA Bond authorized to be issued hereunder.

“Bond Form” shall mean the substantially final form of the 2019 TIFIA Bond attached as Exhibit A to the TIFIA Loan Agreement, with such changes and modifications as shall be appropriate to conform to the terms of the Award Certificate.

“Bond Resolution” shall mean Resolution No. 19-\_\_\_\_, adopted by the Board of Directors of the Authority on February 27, 2019.

“Debt Service Account 2019 TIFIA SUB LIEN” shall mean the “Debt Service Account 2019 TIFIA Subordinate Lien” established in Section 3.3 hereof as part of the Subordinate Lien Debt Service Fund and any Accounts established therein pursuant to this Supplemental Indenture or a Letter of Instructions signed by an Authorized Officer.

“Debt Service Reserve Account 2019 TIFIA SUB LIEN” shall mean the “Debt Service Reserve Account 2019 TIFIA Subordinate Lien” established as part of the Subordinate Lien Debt Service Reserve Fund pursuant to Section 3.4 hereof.

“Designated Payment/Transfer Office” shall mean, initially, the office of the Trustee located in Houston, Texas, or such other office designated by the Trustee from time to time as the place of payment and transfer of registration of ownership of the 2019 TIFIA Bond.

“Eighteenth Supplemental Indenture” shall mean the Eighteenth Supplemental Trust Indenture, dated as of November 1, 2018, between the Authority and the Trustee.

“Eighth Supplemental Indenture” shall mean the Eighth Supplemental Trust Indenture, dated June 1, 2011, between the Authority and the Trustee.

“Indenture” shall mean the Master Indenture, as amended or supplemented (i) by each Supplemental Indenture (as defined in the Master Indenture) heretofore executed and delivered by the Authority and the Trustee in accordance with the terms of the Master Indenture, prior to the date of this Twentieth Supplemental Indenture; (ii) by this Twentieth Supplemental Indenture; and (iii) hereafter from time to time in accordance with the terms of the Master Indenture.

“Initial 2019 TIFIA Bond” shall mean the Initial 2019 TIFIA Bond as described in Section 2.4 hereof.

“Interest Payment Date” shall mean, with respect to the 2019 TIFIA Bond, those dates on which interest is payable pursuant to the TIFIA Loan Agreement.

“Issuance Date” shall mean the date of initial issuance and delivery of the 2019 TIFIA Bond to The United States Department of Transportation, or its designee.

“Master Indenture” shall mean the Master Trust Indenture, dated as of February 1, 2005, between the Authority and the Trustee, without regard to supplements and amendments thereto.

“Nineteenth Supplemental Indenture” shall mean the Nineteenth Supplemental Trust Indenture, dated as of November 1, 2018, between the Authority and the Trustee.

“Series 2018 BANs” shall mean the Authority’s Subordinate Lien Revenue Bond Anticipation Notes, Series 2018, authorized pursuant to the Nineteenth Supplemental Indenture.

“Series 2019 TIFIA SUB LIEN DSR Requirement” shall mean the “Series 2019 TIFIA Bond Subordinate Lien Debt Service Reserve Requirement” which shall be an amount equal to the TIFIA Debt Service Required Balance, as defined in the TIFIA Loan Agreement.

“Springing Lien Account” shall have the meaning given to such term in the Twelfth Supplemental Indenture.

“Springing Lien Obligation” shall have the meaning given to such term in the Twelfth Supplemental Indenture.

“Supplemental Indenture” or “Twentieth Supplemental Indenture” shall mean this Twentieth Supplemental Trust Indenture by and between the Authority and the Trustee, dated as of the date first above written, together with any amendments hereto.

“TIFIA Loan Agreement” shall have the meaning given to such term in Section 2.1 of this Supplemental Indenture.

“Twelfth Supplemental Indenture” shall mean the Twelfth Supplemental Trust Indenture, dated as of November 1, 2015, between the Authority and the Trustee.

“290 East Project” shall have the meaning given to such term in the Eighth Supplemental Indenture.

“290 East 2018 Project Account” shall mean the account by that name established in the Eighteenth Supplemental Indenture as part of the Construction Fund.

“290 East 2019 TIFIA SUB LIEN Project Subaccount” shall mean the “290 East 2019 TIFIA Subordinate Lien Project Subaccount” established pursuant to Section 3.2 hereof as part of the 290 East 2018 Project Account.

Section 1.3. Authority for This Supplemental Indenture. This Supplemental Indenture is adopted pursuant to the provisions of the Act and the Master Indenture, particularly Section 1002(a) of the Master Indenture.

Section 1.4. Rules of Construction.

(a) For all purposes of this Supplemental Indenture unless the context requires otherwise, all references to designated Articles, Sections and other subdivisions are to the articles, sections and other subdivisions of this Supplemental Indenture.

(b) Except where the context otherwise requires, terms defined in this Supplemental Indenture to impart the singular number shall be considered to include the plural number and vice versa.

(c) Unless the context requires otherwise, words of the masculine gender shall be construed to include correlative words of the feminine and neuter genders and vice versa.

(d) This Supplemental Indenture and all the terms and provisions hereof shall be liberally construed to effectuate the purposes set forth herein and to sustain the validity of this Supplemental Indenture and the Master Indenture which it supplements.

Section 1.5. Interpretation. The Table of Contents, titles and headings of the Articles and Sections of this Supplemental Indenture have been inserted for convenience of reference only and are not to be considered a part hereof and shall not in any way modify or restrict the terms or provisions hereof.

Section 1.6. Indenture to Remain in Force. Except as otherwise explicitly provided in this Supplemental Indenture, the Indenture shall be in full force and effect and govern the 2019 TIFIA Bond, it being the express intention of the parties that this Supplemental Indenture supplements the Master Indenture by providing the terms and provisions related to the TIFIA Loan Agreement and authorizes the issuance of the 2019 TIFIA Bond to evidence the obligation under the TIFIA Loan Agreement as a Subordinate Lien Obligation.

Section 1.7. Successors and Assigns. All covenants and agreements in this Supplemental Indenture by the Authority and the Trustee shall bind their respective successors and assigns, whether so expressed or not.

Section 1.8. Separability Clause. In case any provision in this Supplemental Indenture shall be determined to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

Section 1.9. Benefits of Supplemental Indenture. Nothing in this Supplemental Indenture or in the 2019 TIFIA Bond, express or implied, shall give to any Person, other than the parties hereto, their successors hereunder, and the Holder of the 2019 TIFIA Bond, any benefit or any legal or equitable right, remedy or claim under this Supplemental Indenture.

Section 1.10. Governing Law. This Supplemental Indenture shall be construed in accordance with and governed by the laws of the State.

Section 1.11. Miscellaneous. Every “request,” “order,” “demand,” “application,” “notice,” “statement,” “certificate,” “consent,” “instruction,” or similar action hereunder shall, unless the form thereof is specifically provided herein, be in writing, and in the case of the Authority signed by an Authorized Representative or Authorized Officer of the Authority or in the case of any other Person signed by its President or Vice President, or other officer serving in similar capacities specifically authorized to execute such writing on behalf of any other Person, as the case may be.

## **ARTICLE II.**

### **AUTHORIZATION AND TERMS OF 2019 TIFIA BOND**

Section 2.1. Authorization, Principal Amount, Designation of Series, Terms and Provisions to Apply.

(a) The Authority hereby approves the terms and provisions of the TIFIA Loan Agreement (the “TIFIA Loan Agreement”) attached as Exhibit A to this Supplemental Indenture. To evidence the obligation under the TIFIA Loan Agreement, the Subordinate Lien Revenue Bond, Taxable Series 2019, designated as such in the Award Certificate (defined herein as the “2019 TIFIA Bond”), is hereby authorized to be issued pursuant to and in accordance with the provisions of the Bond Resolution, the Master Indenture, this Supplemental Indenture, the Act, Chapter 1371 and the TIFIA Loan Agreement. The 2019 TIFIA Bond is hereby authorized to be issued in the maximum principal amount (excluding capitalized interest) set forth in the TIFIA Loan Agreement. The Authorized Officer shall make such findings as required by law with respect to the 2019 TIFIA Bond, as authorized by the Bond Resolution, this Supplemental Indenture or as otherwise deemed appropriate by the Authorized Officer, all of which shall be set forth in the Award Certificate. The terms of the 2019 TIFIA Bond shall be as set forth in the Master Indenture, this Supplemental Indenture, the Award Certificate, the TIFIA Loan Agreement and the Bond Form. All terms and provisions of the Award Certificate relating to the 2019 TIFIA Bond and all of the terms and provisions of the TIFIA Loan Agreement shall be deemed to be incorporated into and shall become a part of this Supplemental Indenture; provided, that amendment of the TIFIA Loan Agreement shall be governed exclusively by the TIFIA Loan Agreement and any amendment to the TIFIA Loan Agreement shall be deemed an amendment to this Supplemental Indenture.

(b) The 2019 TIFIA Bond (i) may and shall be prepaid or redeemed prior to the respective payment dates, (ii) may be assigned and transferred, (iii) may be exchanged, (iv) shall be designated and have the characteristics, (v) shall be signed and sealed, and (vi) the principal amount and redemption price and interest on the 2019 TIFIA Bond shall be payable, all as

provided, and in the manner required or indicated, in this Supplemental Indenture, the TIFIA Loan Agreement, the Award Certificate and the Bond Form.

Section 2.2. Purpose. The 2019 TIFIA Bond is issued in accordance with Section 302(a) and (b) of the Master Indenture for the purpose of providing funds to pay a portion of the Eligible Costs of certain improvements and extensions to the 290 East Project, including without limitation the design and construction of two tolled direct connectors at the State Highway 130 interchange (defined as the “Project” in the TIFIA Loan Agreement), and the refinancing of Eligible Project Costs funded with the proceeds of the Series 2018 BANs, all under and in accordance with the Constitution and the laws of the State.

Section 2.3. Pledge; Limited Obligations.

(a) The 2019 TIFIA Bond is designated as a Subordinate Lien Obligation, an Obligation of the type described in Section 706(c) of the Master Indenture, a Current Interest Bond and a Long-Term Obligation under the Master Indenture.

(b) Subject to the provisions of Section 6.1, the 2019 TIFIA Bond shall be a limited obligation of the Authority constituting a Subordinate Lien Obligation payable from and secured solely by a lien on, pledge of and security interest in the Trust Estate, which lien and pledge are junior and subordinate to the Senior Lien Obligations and the Junior Lien Obligations; provided, that the interest of the 2019 TIFIA Bond in the Construction Fund shall be limited to amounts on deposit in the 290 East 2019 TIFIA SUB LIEN Project Subaccount. The 2019 TIFIA Bond, as a Subordinate Lien Obligation (or as a Senior Lien Obligation to the extent the 2019 TIFIA Bond becomes a Senior Lien Obligation pursuant to Section 6.1), shall constitute a valid claim of the Holder thereof against the Trust Estate (including the Debt Service Reserve Account 2019 TIFIA SUB LIEN, as provided herein), which is pledged to secure the payment of the principal of, redemption premium, if any, and interest on the 2019 TIFIA Bond. The 2019 TIFIA Bond shall not constitute a general obligation of the Authority and under no circumstances shall the 2019 TIFIA Bond be payable from, nor shall the Holder thereof have any rightful claim to, any income, revenues, funds or assets of the Authority other than those pledged hereunder and under the Master Indenture as security for the payment of Subordinate Lien Obligations (or for the payment of Senior Lien Obligations to the extent the 2019 TIFIA Bond becomes a Senior Lien Obligation pursuant to Section 6.1).

Any and all amounts deposited to the Debt Service Reserve Account 2019 TIFIA SUB LIEN are pledged to the payment of the 2019 TIFIA Bond. Under no circumstances shall any other Obligations, whether previously issued or hereafter issued, be payable from or secured by amounts on deposit in the Debt Service Reserve Account 2019 TIFIA SUB LIEN unless otherwise expressly provided by the Authority in a Supplemental Indenture with the consent of the Holders of 100% of the aggregate principal amount of the 2019 TIFIA Bond.

NONE OF THE STATE OF TEXAS OR ANY OTHER AGENCY OR POLITICAL SUBDIVISION OF THE STATE OF TEXAS OTHER THAN THE AUTHORITY IS OBLIGATED TO PAY THE PRINCIPAL OF, PREMIUM, IF ANY, OR INTEREST ON THE 2019 TIFIA BOND. THE 2019 TIFIA BOND IS PAYABLE SOLELY FROM THE TRUST ESTATE AND CERTAIN FUNDS CREATED UNDER THE INDENTURE. NEITHER THE

FAITH AND CREDIT NOR THE TAXING POWER OF THE STATE OF TEXAS OR ANY POLITICAL SUBDIVISION THEREOF IS PLEDGED TO THE PAYMENT OF THE PRINCIPAL OF, PREMIUM, IF ANY, OR INTEREST ON THE 2019 TIFIA BOND. THE AUTHORITY HAS NO TAXING POWER.

NO RECOURSE UNDER THE 2019 TIFIA BOND SHALL BE HAD AGAINST ANY PAST, PRESENT OR FUTURE OFFICER OF THE AUTHORITY. THE 2019 TIFIA BOND SHALL NEVER BE PAID IN WHOLE OR IN PART OUT OF ANY FUNDS RAISED OR TO BE RAISED BY TAXATION OR OUT OF ANY OTHER REVENUES OF THE AUTHORITY, EXCEPT THOSE REVENUES ASSIGNED BY THE INDENTURE.

Section 2.4. Date, Numbers, and Letters.

(a) The 2019 TIFIA Bond shall be dated as provided in the Award Certificate.

(b) Unless the Authority shall direct otherwise, the 2019 TIFIA Bond shall be lettered and numbered separately from A-1 upward. The 2019 TIFIA Bond registered by the Comptroller of Public Accounts of the State of Texas (the "Initial 2019 TIFIA Bond") shall be lettered and numbered A-1.

Section 2.5. Interest Payment Dates, Interest Rate and Maturity Date.

(a) Interest on the 2019 TIFIA Bond shall payable on each Interest Payment Date as provided in the TIFIA Loan Agreement.

(b) The 2019 TIFIA Bond shall mature on the date or dates and shall bear interest at the per annum rate or rates set forth in the TIFIA Loan Agreement in accordance with the provisions of the Transportation Infrastructure Finance and Innovation Act of 1998, 23 USC Section 181, et seq.

Section 2.6. Paying Agent; Method and Place of Payment. The Trustee is hereby appointed as Paying Agent for the 2019 TIFIA Bond. The principal of the 2019 TIFIA Bond shall be payable on the due date thereof (whether at stated maturity or, if applicable, on a prior redemption date or optional or mandatory prepayment date) upon the presentation and surrender thereof at the Designated Payment/Transfer Office. The principal amount and redemption price of and interest on the 2019 TIFIA Bond shall be payable at the times and in the manner provided in the TIFIA Loan Agreement and the Bond Form.

Section 2.7. Sale of 2019 TIFIA Bond. It is hereby found and determined to be in the best interest of the Authority for the 2019 TIFIA Bond issued under this Supplemental Indenture to be sold to The United States Department of Transportation, acting by and through the Executive Director of the Build America Bureau. The 2019 TIFIA Bond shall not be issued initially as a book-entry-only obligation.

Section 2.8. Prepayment. The 2019 TIFIA Bond shall be subject to prepayment or redemption, in whole or in part, and at such times, in such amounts and with such notice as may be provided in the TIFIA Loan Agreement.

## **ARTICLE III.**

### **ACCOUNTS; APPLICATION OF PROCEEDS**

Section 3.1. 290 East 2018 Project Account. The 290 East 2018 Project Account established pursuant to Section 3.1(a) of the Eighteenth Supplemental Indenture is hereby confirmed and ratified.

Section 3.2. 290 East 2019 TIFIA SUB LIEN Project Subaccount.

(a) There is hereby established within the 290 East 2018 Project Account a subaccount designated “290 East 2019 TIFIA Subordinate Lien Project Subaccount” (“290 East 2019 TIFIA SUB LIEN Project Subaccount”).

(b) The Authority shall deposit with the Trustee all of the net proceeds of the 2019 TIFIA Bond as received by the Authority pursuant to disbursements made under and pursuant to the provisions of the TIFIA Loan Agreement, and the Trustee shall deposit such proceeds to the credit of the 290 East 2019 TIFIA SUB Lien Project Subaccount.

(c) Amounts on deposit in the 290 East 2019 TIFIA SUB LIEN Project Subaccount shall be used for the purpose of paying a portion of the Eligible Project Costs of certain improvements and extensions to the 290 East Project, including without limitation the design and construction of two tolled direct connectors at the State Highway 130 interchange (defined as the “Project” in the TIFIA Loan Agreement), and the refinancing of Eligible Project Costs funded with the proceeds of the Series 2018 BANs, in accordance with and subject to the provisions of the Indenture and the provisions of the TIFIA Loan Agreement.

(d) The Authority shall submit written requisition requests in the form of Exhibit B to this Supplemental Indenture to request disbursements from the 290 East 2019 TIFIA SUB LIEN Project Subaccount in accordance with the Indenture. Amounts requisitioned by the Authority for the purpose of refinancing Eligible Project Costs funded with the proceeds of the Series 2018 BANs shall be transferred by the Trustee to such Funds, Accounts or subaccounts (whether existing or hereafter created for such purpose, and including without limitation, the Debt Service Account 2018 Subordinate Lien established in the Nineteenth Supplemental Indenture) as directed by the Authority in a Letter of Instructions and shall be used for such purpose.

Section 3.3. Debt Service Account 2019 TIFIA Subordinate Lien.

(a) There is hereby established within the Subordinate Lien Debt Service Fund an account designated “Debt Service Account 2019 TIFIA Subordinate Lien” (the “Debt Service Account 2019 TIFIA SUB LIEN” and also referred to in the TIFIA Loan Agreement as the “TIFIA Debt Service Account”). Moneys on deposit in the Debt Service Account 2019 TIFIA SUB LIEN shall be used to pay debt service on the 2019 TIFIA Bond when due.

(b) On or prior to each Interest Payment Date with respect to the 2019 TIFIA Bond, the Trustee shall deposit to the Debt Service Account 2019 TIFIA SUB LIEN from Revenues an amount sufficient to pay debt service then due on the 2019 TIFIA Bond.



Section 3.4. Debt Service Reserve Account 2019 TIFIA Subordinate Lien.

(a) There is hereby established within the Subordinate Lien Debt Service Reserve Fund an account designated “Debt Service Reserve Account 2019 TIFIA Subordinate Lien” (the “Debt Service Reserve Account 2019 TIFIA SUB LIEN” and also referred to in the TIFIA Loan Agreement as the “TIFIA Debt Service Reserve Account”).

(b) The Debt Service Reserve Account 2019 TIFIA SUB LIEN shall be funded, maintained and applied, and amounts therein shall be subject to release and withdrawal, as provided in Sections 16(k)(ii), (iv), (v) and (vi) of the TIFIA Loan Agreement, Section 513 of the Master Indenture and Section 6.1 of this Supplemental Indenture.

(c) Amounts on deposit in the Debt Service Reserve Account 2019 TIFIA SUB LIEN are hereby pledged to the payment of the 2019 TIFIA Bond. Under no circumstances shall any other Obligations, whether previously issued or hereafter issued, have any rights to monies on deposit in the Debt Service Reserve Account 2019 TIFIA SUB LIEN. Any additional Obligations issued after the Issuance Date shall only have such rights to monies on deposit in the Subordinate Lien Debt Service Reserve Fund, including amounts on deposit in the Debt Service Reserve Account 2019 TIFIA SUB LIEN, as is specifically set forth in the Supplemental Indenture relating to such additional Obligations and, with respect to the Debt Service Reserve Account 2019 TIFIA SUB LIEN, with the consent of the Holders of 100% of the aggregate principal amount of the 2019 TIFIA Bond.

**ARTICLE IV.**

**FORM OF BOND**

Section 4.1. Form of 2019 TIFIA Bond. The form of the 2019 TIFIA Bond, including any 2019 TIFIA Bond issued in exchange or replacement for any other 2019 TIFIA Bond or portion thereof, including the form of the Trustee’s Authentication Certificate, the Registration Certificate of the Comptroller of Public Accounts of the State of Texas with respect to the Initial 2019 TIFIA Bond and the Form of Assignment, shall be substantially as set forth in or attached as Exhibit A to the TIFIA Loan Agreement, with such omissions, insertions, and variations as permitted or required by the Master Indenture, this Supplemental Indenture and the Award Certificate.

Section 4.2. Initial 2019 TIFIA Bond. The Award Certificate may provide for the use of an Initial 2019 TIFIA Bond, as described in Section 2.4, representing the entire principal amount of 2019 TIFIA Bond, payable in stated installments to the order of The United States Department of Transportation or its designee, executed by the manual or facsimile signature of the Chairman of the Board of Directors of the Authority and attested by manual or facsimile signature of the Secretary of the Board of Directors of the Authority, approved by the Attorney General of Texas, and registered and manually signed by the Comptroller of Public Accounts of the State of Texas.

Section 4.3. Additional Provisions Regarding Bonds.

(a) The 2019 TIFIA Bond may have such letters, numbers, or other marks of identification (including identifying numbers and letters of the Committee on Uniform Securities

Identification Procedures of the American Bankers Association) and such legends and endorsements (including any reproduction of an opinion of bond counsel) thereon as, consistent herewith, may be determined by the officers executing the 2019 TIFIA Bond, as evidenced by their execution thereof.

(b) The definitive 2019 TIFIA Bond shall be typewritten, printed, lithographed, or engraved and may be produced by any combination of such methods or produced in any other similar manner, all as determined by the officers executing such 2019 TIFIA Bond, as evidenced by their execution thereof.

(c) The Initial 2019 TIFIA Bond submitted to the Attorney General of the State of Texas may be typewritten or photocopied or otherwise produced or reproduced.

## **ARTICLE V.**

### **PARTICULAR COVENANTS**

Section 5.1. Confirmation of Funds and Accounts. The establishment of all Funds, Accounts and subaccounts heretofore established in the Indenture is hereby confirmed and ratified.

Section 5.2. Covenants Regarding Tax Status. The Authority does not intend to issue the 2019 TIFIA Bond in a manner such that the 2019 TIFIA Bond would constitute an obligation described in section 103(a) of the Internal Revenue Code of 1986, as amended (the "Code"), and all applicable temporary, proposed, and final regulations and procedures promulgated thereunder. The Authority covenants that it will not file an Internal Revenue Form 8038 or an Internal Revenue Form 8038-G with respect to the 2019 TIFIA Bond.

Section 5.3. Transfers from the Senior Lien Debt Service Reserve Fund. Notwithstanding Section 509 of the Master Indenture to the extent there are excess amounts on deposit in the Senior Lien Debt Service Reserve Fund and such excess amounts were derived from Revenues, the Authority shall not transfer such excess amounts to the General Fund but instead may deposit such excess amounts into the Revenue Fund.

Section 5.4. Transfers from 290 East 2018 Project Account. The Authority shall obtain the written consent of the Holder of the 2019 TIFIA Bond prior to transferring any funds on deposit in or credited to the 290 East 2018 Project Account to a different account under the Construction Fund or to a different Fund established under the Master Indenture (other than the Revenue Fund), subject to and except as otherwise may be provided in the TIFIA Loan Agreement.

Section 5.5. Credit Facilities. To the extent the Authority has replaced all or a portion of the required balance in any of the Senior Lien Debt Service Reserve Fund, the Junior Lien Debt Service Reserve Fund, the Subordinate Lien Debt Service Reserve Fund or the Renewal and Replacement Fund with a Credit Facility in the form of a letter of credit, if at any time an issuer of such letter of credit ceases to maintain a rating of its unsecured, senior long-term indebtedness of at least 'A,' 'A2' or the equivalent rating from each nationally recognized rating agency that provides such rating, the Authority shall, within fifteen (15) Business Days of the date on which the current issuer ceased to be maintain any such credit rating, cause such letter of credit to be replaced by a letter of credit issued by a bank or trust company that is authorized to engage in the

banking business, and is organized under or licensed as a branch or agency under the laws of the United States or any state thereof and has a rating of its unsecured, senior long-term indebtedness of at least ‘A+,’ ‘A1’ or the equivalent rating from each nationally recognized rating agency that provides such rating; provided, that the Authority and the Trustee each acknowledges and agrees that if the Authority fails to replace the current Credit Facility with a new Credit Facility issued by an issuer meeting the qualifications described above within such fifteen (15) Business Day period, the Holder of the 2019 TIFIA Bond may direct the Trustee to draw immediately the full amount of such letter of credit and deposit the proceeds of such drawing into the applicable Fund. The Holder of the 2019 TIFIA Bond is an express third party beneficiary with respect to this Section 5.5 and may directly enforce compliance with this Section 5.5.

Section 5.6. Subordinated Hedging Termination Obligations. The Authority and the Trustee acknowledge and agree that “Subordinated Hedging Termination Obligations” shall not be paid prior to the payment of principal or interest in respect of Subordinate Lien Obligations pursuant to Section 505 of the Master Indenture. For purposes of this Section 5.6, “Subordinated Hedging Termination Obligations” means the aggregate amount payable by the Authority to the counterparties to any hedging agreement upon the early termination or early unwind of all or a portion of such hedging agreement (net of all amounts payable to the Authority by such hedge counterparties) for reasons other than (i) the request of the Authority as a result of a determination by the Authority that the applicable hedging arrangement (or any part thereof) is no longer necessary or required under the terms of the TIFIA Loan Agreement, (ii) amortization (or other reduction) of the notional amount of a hedge, to the extent that any hedging agreement evidencing such hedge provides for the notional amount to amortize or otherwise be reduced from time to time, (iii) the requirements of Section 16(o)(vii) of the TIFIA Loan Agreement, (iv) a tax or illegality event, or (v) failure by the Authority to pay any obligations under such hedging agreement when due.

Section 5.7. Amendments to Twelfth Supplemental Indenture. During any time that the 2019 TIFIA Bond is Outstanding and all or any portion of the 2019 TIFIA Bond is held by a Qualified Holder (as defined in Section 6.1 hereof), neither Section 3.9 nor Section 3.10 of the Twelfth Supplemental Indenture may be amended, supplemented or otherwise modified, nor may compliance with the requirements of such sections be waived by the Trustee, without the prior written consent of the Qualified Holders.

Section 5.8. Purpose. The provisions of this Article V are for the sole benefit of the Holders of the 2019 TIFIA Bond and may be modified or amended at any time with the consent of, or may be waived in whole or in part by, the Holders of 100% of the aggregate principal amount of the 2019 TIFIA Bond and may not be relied upon or enforced by the Holders of any other Obligations.

## **ARTICLE VI.**

### **DEFAULT REMEDY**

Section 6.1. 2019 TIFIA Bond Default Remedy. Upon the occurrence of an Event of Default described in Section 801(d) of the Master Indenture during any period when the 2019 TIFIA Bond is Outstanding and to the extent that either the United States Department of

Transportation, acting by and through the Executive Director of the Build America Bureau, or any other federal government agency or instrumentality (in each case, a “Qualified Holder”) is a Holder of all or a portion of the 2019 TIFIA Bond, (i) the 2019 TIFIA Bond, or any portion thereof, held by a Qualified Holder will be deemed to be and will automatically become a Senior Lien Obligation for all purposes of the Indenture, including particularly the provisions of Article VIII of the Master Indenture, and such Qualified Holder will be deemed to be the Holder of such Senior Lien Obligation, (ii) the portion of the funds on deposit in the Debt Service Account 2019 TIFIA SUB LIEN established in Section 3.3 allocable to the Outstanding principal amount of the 2019 TIFIA Bond held by one or more Qualified Holders shall be transferred to a new Account that shall be established as a separate Account in the Senior Lien Debt Service Fund for the benefit of such Qualified Holders; provided, that if a Qualified Holder is the sole holder of the 2019 TIFIA Bond at the time an Event of Default described in Section 801(d) of the Master Indenture occurs, the Debt Service Account 2019 TIFIA SUB LIEN established in Section 3.3 and all funds on deposit therein shall be deemed to be automatically transferred, reestablished and redesignated as a separate Account in the Senior Lien Debt Service Fund for the benefit of the 2019 TIFIA Bond and (iii) the portion of the funds on deposit in the Debt Service Reserve Account 2019 TIFIA SUB LIEN established in Section 3.4 allocable to the outstanding principal amount of the 2019 TIFIA Bond held by one or more Qualified Holders shall be transferred to a new Account that shall be established as a separate Account in the Senior Lien Debt Service Reserve Fund for the benefit of such Qualified Holders; provided, that if a Qualified Holder is the sole holder of the 2019 TIFIA Bond at the time an Event of Default described in Section 801(d) of the Master Indenture occurs, the Debt Service Reserve Account 2019 TIFIA SUB LIEN and all funds on deposit therein shall be deemed to be automatically transferred, reestablished and redesignated as a separate Account in the Senior Lien Debt Service Reserve Fund for the benefit of the 2019 TIFIA Bond, and, in each case, such Account shall constitute a Springing Lien Account and the 2019 TIFIA Bond shall constitute a Springing Lien Obligation for the purposes of Section 3.10 of the Twelfth Supplemental Indenture.

## **ARTICLE VII.**

### **OTHER MATTERS**

Section 7.1. Execution in Several Counterparts. This Supplemental Indenture may be simultaneously executed in several counterparts, all of which shall constitute one and the same instrument and each of which shall be, and shall be deemed to be, an original.

Section 7.2. Designation as System Project. The designation of the 290 East Project, together with all improvements and extensions thereto constructed with the proceeds of the Series 2018 BANs or the 2019 TIFIA Bond, as a System Project is ratified and reaffirmed. The existing eastbound U.S. 290 to northbound SH 130 direct connector (the “Existing TxDOT DC”) was previously constructed, and is owned and operated, by the Texas Department of Transportation (“TxDOT”). The eastbound U.S. 290 to southbound SH 130 direct connector and certain associated improvements (the “New TxDOT DC”) that are being constructed by the Authority pursuant to separate agreements between the Authority and TxDOT, will be financed, owned and operated by TxDOT. The Authority does not have operational responsibility for either the Existing TxDOT DC or the New TxDOT DC, and neither the Existing TxDOT DC nor the New TxDOT DC have been, or are being (as applicable), financed or refinanced with the proceeds of any

Obligations. Accordingly, neither the Existing TxDOT DC nor the New TxDOT DC are part of the System.

Section 7.3. Permitted Investments. The proceeds of the 2019 TIFIA Bond may only be invested as permitted by the TIFIA Loan Agreement.

Section 7.4. No Boycott of Israel. The Trustee represents that it and its parent company, wholly- or majority-owned subsidiaries, and other affiliates, if any, do not boycott Israel and, to the extent this Supplemental Indenture is a contract for goods or services, will not boycott Israel during the term of this Supplemental Indenture. The foregoing verification is made solely to comply with Section 2270.002, Texas Government Code, and to the extent such Section does not contravene applicable Federal law or regulation. As used in the foregoing verification, “boycott Israel” means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes. The Trustee understands “affiliate” to mean an entity that controls, is controlled by, or is under common control with the Trustee and exists to make a profit.

Section 7.5. Iran, Sudan and Foreign Terrorist Organizations. The Trustee represents that neither it nor any of its parent company, wholly- or majority-owned subsidiaries, and other affiliates is a company identified on a list prepared and maintained by the Texas Comptroller of Public Accounts under Section 2252.153 or Section 2270.0201, Texas Government Code, and posted on any of the following pages of such officer's internet website:

<https://comptroller.texas.gov/purchasing/docs/sudan-list.pdf>,  
<https://comptroller.texas.gov/purchasing/docs/iran-list.pdf>, or  
<https://comptroller.texas.gov/purchasing/docs/fto-list.pdf>.

The foregoing representation is made solely to comply with Section 2252.152, Texas Government Code, and to the extent such Section does not contravene applicable Federal law or regulation and excludes the Trustee and each of its parent company, wholly- or majority-owned subsidiaries, and other affiliates, if any, that the United States government has affirmatively declared to be excluded from its federal sanctions regime relating to Sudan or Iran or any federal sanctions regime relating to a foreign terrorist organization. The Trustee understands “affiliate” to mean an entity that controls, is controlled by, or is under common control with the Trustee and exists to make a profit.

[Execution Pages Follow]

IN WITNESS WHEREOF, the Authority and the Trustee have caused this Supplemental Indenture to be signed and attested on their behalf by their duly authorized representatives, all as of the date first hereinabove written.

CENTRAL TEXAS REGIONAL MOBILITY  
AUTHORITY

By \_\_\_\_\_  
Chairman

Attest:

\_\_\_\_\_  
Secretary

REGIONS BANK, Trustee

By \_\_\_\_\_  
Authorized Officer

**EXHIBIT A**  
**TIFIA LOAN AGREEMENT**



**EXHIBIT B**

**FORM OF REQUISITION**

**CONSTRUCTION FUND**

**290 EAST 2019 TIFIA SUBORDINATE LIEN PROJECT SUBACCOUNT  
CERTIFICATE AND REQUISITION FOR PAYMENT**

DATE: [Month], [Year]

DRAW REQUEST NO.: \_\_\_\_\_

<b><u>DESCRIPTION SUMMARY</u></b> <sup>1</sup>	<b><u>AMOUNT</u></b>
	\$ _____
TOTAL AMOUNT REQUESTED	\$ _____

The Authority does hereby certify to the Trustee that: (i) each item submitted herewith is a proper charge against the 290 East 2019 TIFIA Subordinate Lien Project Subaccount of the 290 East 2018 Project Account of the Construction Fund and has not been paid, (ii) such requisition contains no item representing payment on account of any retainage which the Authority is as of the date of this requisition not entitled to release, (iii) no default exists under the Indenture which has not been disclosed to the Trustee and the Authority will use its best efforts to cure any default if it exists and (iv) there has not been filed with or served upon the Authority legal notice of any lien, right to lien, attachment or other claim, which is valid in the opinion of counsel to the Authority and affects the right to receive payment of any of the moneys payable to any of the Persons, firms or corporations named herein which has not been released or will not be released simultaneously with such payment.

Please remit funds by wire transfer to the Authority [Wiring instructions for disbursement].

CENTRAL TEXAS REGIONAL MOBILITY  
AUTHORITY

By: \_\_\_\_\_  
Authorized Representative

<sup>1</sup> Attach appropriate information indicating the name of the Person, Firm or Corporation to whom payment is due, the amount to be paid and the purpose for which such obligation was incurred.

**CERTIFICATION OF GENERAL ENGINEERING CONSULTANT**

As General Engineering Consultant for the 290 East Project, we hereby certify the following in connection with 290 East 2019 TIFIA Subordinate Lien Project Subaccount of the 290 East Project Account of the Construction Fund Certificate and Requisition for Payment Draw Request No. \_\_\_\_\_:

- (i) such requisition is approved;
- (ii) the amount requisitioned is due and has not previously been paid from the 290 East Project Account of the Construction Fund;
- (iii) insofar as the payment is to be made for work, material, supplies or equipment, the work has been performed and the materials, supplies or equipment have been installed in the 290 East Project or have been delivered at the site;
- (iv) all work material, supplies and equipment for which payment is to be made are, in our opinion, substantially in accordance with the plans and specifications or duly approved change orders; and

[If an item for payment includes real property:

- (v) acquisition of such property is necessary or advisable in connection with the construction or operation of the 290 East Project.]

\_\_\_\_\_  
as General Engineering Consultant

By: \_\_\_\_\_  
Title: \_\_\_\_\_

**GENERAL MEETING OF THE BOARD OF DIRECTORS  
OF THE  
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**

**RESOLUTION NO. 19-008**

**APPROVAL OF SUPPLEMENT NO. 2 TO WORK AUTHORIZATION NO. 7 WITH WSP USA,  
INC. FOR PROFESSIONAL ENGINEERING SERVICES FOR THE MOPAC IMPROVEMENT  
PROJECT AND MOPAC MISCELLANEOUS IMPROVEMENTS PROJECT**

WHEREAS, by Resolution No. 17-043 dated July 26, 2017, the Board Authorized the Executive Director to execute Work Authorization No. 7 with WSP USA, Inc. (formerly Parsons Brinckerhoff, Inc.) for general engineering consultant services for the MoPac Improvement Project; and

WHEREAS, by Resolution No. 18-009 dated March 28, 2018, the Board authorized the Executive Director to negotiate and execute a construction contract with McCarthy Building Companies, Inc. for additional enhancements to the MoPac Improvement Project (the "MoPac Miscellaneous Improvements Project"); and

WHEREAS, by Resolution No. 18-041, dated July 25, 2018, the Board authorized the Executive Director to execute Supplement No. 1 to Work Authorization No. 7 for construction engineering, inspection and general engineering consultant services on the MoPac Improvement Project and the MoPac Miscellaneous Improvements Project through January 2019; and

WHEREAS, completion of the MoPac Improvement Project is currently anticipated in March 2019 and completion of the MoPac Miscellaneous Improvements Project is currently anticipated in July 2019; and

WHEREAS, the Executive Director and WSP USA, Inc. have negotiated proposed Supplement No. 2 to Work Authorization No. 7 in an amount not to exceed \$687,333.08 to continue construction engineering, inspection and general engineering consultant services for the Mopac Improvements Project and the Mopac Miscellaneous Improvements Project; and

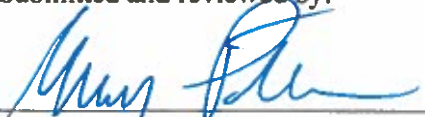
WHEREAS, the Executive Director recommends that the Board approve proposed Supplement No. 2 to Work Authorization No. 7 in the form or substantially the same form as attached hereto as Exhibit A.

NOW THEREFORE, BE IT RESOLVED, that the Board approves an amount not to exceed \$687,333.08 for the services described in Supplement No. 2 to Work Authorization No. 7; and

BE IT FURTHER RESOLVED, that the Board authorizes the Executive Director to finalize and execute proposed Supplement No. 2 to Work Authorization No. 7 with WSP USA, Inc. in the form or substantially the same form as Exhibit A.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 27<sup>th</sup> day of February 2019.

Submitted and reviewed by:

  
\_\_\_\_\_  
Geoffrey Petrov, General Counsel

Approved:

  
\_\_\_\_\_  
Ray A. Wilkerson  
Chairman, Board of Directors

**Exhibit A**

## APPENDIX D

### SUPPLEMENTAL WORK AUTHORIZATION

#### SUPPLEMENTAL WORK AUTHORIZATION NO. 2 to WORK AUTHORIZATION NO. 7

**THIS SUPPLEMENTAL WORK AUTHORIZATION** is made as of this 27<sup>th</sup> day of February 2019, under the terms and conditions established in the AGREEMENT FOR GENERAL CONSULTING ENGINEERING SERVICES, dated as of June 30, 2016 (the "Agreement"), between the Central Texas Regional Mobility Authority ("Authority") and WSP USA Inc. (formerly Parsons Brinckerhoff, Inc.) ("GEC"). This Supplemental Work Authorization is made for the following purpose, consistent with the services defined in the Agreement:

#### *MoPac Improvement Projects –Completion of Design/Build & Construction Oversight*

##### **Section A. - Scope of Services**

A.1. GEC shall perform the following Services:

Please reference "Scope of Work" attached hereto as Attachment A which replaces the Scope of Work included in Supplemental Work Authorization No. 1 in its entirety.

##### **Section B. - Schedule**

GEC shall perform the Services and deliver the related Documents (if any) according to the following schedule:

Services defined herein are anticipated to be substantially complete on December 31, 2019. This Work Authorization will not expire until all tasks associated with the Scope of Services are complete as defined by the Mobility Authority.

##### **Section C. - Compensation**

C. 1. In return for the performance of the foregoing obligations, the Authority authorizes an amount not to exceed \$687,333.08 based on Attachment B - Fee Estimate which is composed of a Base Amount of \$580,329.29 and a Contingency Amount of \$107,003.79. This will increase the not to exceed amount for Work Authorization No. 7 from \$6,219,609.89 to \$6,906,942.97. Compensation shall be in accordance with the Agreement.

The Authority and the GEC agree that the budget amounts contained in Attachment B - Fee Estimate for the GEC are estimates and that these individual figures may be redistributed and/or adjusted as necessary over the duration of this Work Authorization. The GEC may alter the compensation distribution between tasks or work assignments to be consistent with the Services actually rendered within the total Work Authorization amount. The GEC shall not exceed the maximum amount payable without prior written

permission by the Authority.

C.2. Compensation for Additional Services (if any) shall be paid by the Authority to the GEC according to the terms of a future Work Authorization or an additional Supplement to the original Work Authorization.

**Section D. - Authority's Responsibilities**

The Authority shall perform and/or provide the following in a timely manner so as not to delay the Services of the GEC. Unless otherwise provided in this Supplemental Work Authorization, the Authority shall bear all costs incident to compliance with the following:

Not applicable

**Section E. - Other Provisions**

Except to the extent expressly modified herein, all terms and conditions of the Agreement shall continue in full force and effect.

**Authority:**

**CENTRAL TEXAS REGIONAL  
MOBILITY AUTHORITY**

**GEC:**

**WSP USA Inc.**

By: \_\_\_\_\_

By: \_\_\_\_\_

Name: Mike Heiligenstein

Name: \_\_\_\_\_

Title: Executive Director

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

**ATTACHMENT A – SCOPE OF WORK**  
**CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**  
**WSP USA INC. GENERAL ENGINEERING CONSULTANT CONTRACT**  
**SUPPLEMENTAL WORK AUTHORIZATION NO. 2 TO**  
**WORK AUTHORIZATION NO. 7**  
**SERVICES TO BE PROVIDED BY THE**  
**GENERAL ENGINEERING CONSULTANT (GEC)**

**General**

The services to be performed by the General Engineering Consultant (GEC) will include, but not be limited to, project management services necessary to oversee 1) the remaining construction of the MoPac Improvement Project through the use of a Design/Build (D/B) Contract and 2) the construction of the MoPac Miscellaneous Improvements Project through the use of Traditional Construction Contract (hereinafter referred to as the Projects). The terms “Projects”, “Contracts”, and or “Contractors” will be used hereinafter to collectively reference both Projects. The services to be performed by the GEC will entail those professional services and associated deliverables required to complete the oversight activities associated with the management of the Contractors on the Projects.

The GEC will assist with communications between the Mobility Authority and Contractors, acting as an extension of Mobility Authority staff by providing technical and professional personnel to perform the duties and responsibilities assigned under the terms of this Agreement. The GEC shall not control or direct construction under the Contracts. Oversight reviews by the GEC will not relieve the Contractors of sole responsibility for the means and methods of construction, or for health or safety precautions in connection with the work under the Contracts. The GEC will maintain core Oversight staff at the Contractor-provided Project field office(s) to manage and administer the planning, execution, and construction; including invoicing and administrative support, for activities required to complete the overall oversight efforts. This staff will represent the Mobility Authority's interests as defined in the Contracts.

**1. PROJECT MANAGEMENT (Code 13730)**

The GEC will provide staff to manage, review and coordinate the Project. The GEC will develop and maintain a staffing plan for consistency and appropriate level of Project staffing. Activities included in this task:



## **1.1 Project Administration**

- Review and report on the Contractors' submittals of records and reports including:
  - Weekly payroll
  - Statement of wage compliance
  - Requests for payment of materials on hand and Disadvantaged Business Enterprise (DBE) compliance
  - Reports and records as required for the Project by Texas Department of Transportation (TxDOT) and/or Federal Highway Administration (FHWA) and/or City of Austin and/or Union Pacific Railroad (UPRR) and/or Capital Metro
- Report Project progress and issues in a timely manner
- Review, monitor, and report on Contractors' Project Schedule
- Update records of the cost involved in potential new change order work. These records will include labor and equipment times and materials installed (temporary or permanent).
- Assist in the surveillance of the Contractors' compliance with contract requirements that are remaining on the project. The GEC will review, based on available information, the Contract compliance and maintaining the appropriate files thereof. Typical areas of compliance responsibility include TxDOT Local Government Project Procedures (LGPP) requirements, Equal Employment Opportunity (EEO) Affirmative Action, DBE, On-the-Job Training (OJT) positions and number of hours, and payroll and subcontracts.
- Provide compliance oversight of third party agreements for remaining work including:
  - Dewatering permits
  - National Pollution Discharge Elimination System (NPDES) permits
  - Demolition permits
  - Noise permits
  - Corps of Engineer permits
  - Utility agreements
  - UPRR | Capital Metro agreements

## **1.2 Sub-Consultants**

- Coordinate, contract and provide oversight for any required sub-consultants to the GEC.

## **1.3 Program Reporting**

- Provide a monthly update to the Mobility Authority on key milestones accomplished during the preceding month, meetings and key activities for the upcoming month, and identify outstanding issues requiring resolution.
- Track, monitor, and report on contracts and budgets for the GEC and subconsultants, and the Contractors.

- Track, monitor, and prepare reports on DBE utilization for the Contractors' program and GEC team.

#### **1.4 Project Schedule**

The GEC will provide staff to coordinate the Project scheduling efforts.

Specific activities include:

- Evaluate, monitor, and verify according to contractual requirements, the Contractors' Project Schedule; Baseline and Updates, and Recovery Schedules.
- Report and verify the Contractors' progress and upcoming milestones on a monthly basis to the Mobility Authority.
- Identify, catalog, and archive Baseline Schedules and schedule revisions and Updates, and Recovery Schedules. Evaluate time impacts and report recommendations to the Mobility Authority.

#### **1.5 Change Order Processing & Management**

- Provide review of new potential Change Orders on the Project and process in accordance with the Contract and coordinate with external agencies as required.
- Review Change Order cost estimates prepared by the Contractors. Evaluate Contractors' claims for extension of time, and provide comments and recommendations to the Mobility Authority.
- Update log and retain all documents associated with new potential Change Orders.

#### **1.6 Project Meetings & Documentation**

The GEC will facilitate the following internal GEC Project meetings to assess progress, schedule, and quality of services being provided as well as identify issues:

- Project Progress Meetings - Weekly
- Mobility Authority Construction Status Update Meetings - Monthly

The GEC will prepare agendas and meeting minutes.

In addition, the GEC will participate in the Contractors' Project meetings, including but not limited to:

Construction Phase

- Utilities - Weekly
- Rail - Weekly
- Quality Assurance - Bi-weekly
- Maintenance of Traffic - Weekly
- Public information - Weekly
- Environmental Compliance — Weekly

Oversight, Scheduling, and Coordination

- 4-Week Rolling Schedule Review - Weekly
- Comprehensive Schedule — Monthly
- Staffing Meeting - Monthly
- Steering Committee - Bi-weekly
- Executive Management - Quarterly

### **1.7 Tracking Database**

Update the tracking database for correspondence, transmittals, requests for information, meeting minutes, action items, submittals, Inspector daily reports, project diary, project schedule, change orders, pay estimates, lien waivers, Shop drawings, working drawings, erection drawings, catalog cut sheets, mix designs, non-conformance reports, payment certifications, Insurance and Bonds, material test data, schedules, audits, related technical data, and issues associated with the Project that occur after the start date of this GEC work authorization.

## **2. CONSTRUCTION OVERSIGHT (Code 13620)**

The GEC will provide professional services associated with construction oversight including the construction engineering and inspection in accordance with the Project Development Agreement (PDA), Contracts, and Systems Integrator (SI) Contract for the remainder of construction. The GEC will provide qualified technical and professional personnel to perform this task. In performance of this task, the GEC shall not direct, manage, or control the Contractors' construction work activities. Construction Oversight by the GEC, including field inspections, testing, and oversight reviews, will not relieve the Contractors of sole responsibility for the means and methods of the construction, or for health or safety precautions in connection with the work. The Engineer(s) of Record will remain responsible for design related services.

The GEC will establish and maintain the Project Field Office operation within the Contractor-provided facility; including leasing and maintenance of project vehicles; and any additional expenses required by the Project and not provided by the Contractors.

Construction oversight efforts will focus on coordination with the Contractors' and SI's construction processes to provide monitoring and oversight of reasonable compliance obligations, sound engineering practices, and regulatory requirements. The GEC will utilize the previously developed Quality Assurance Program (QAP) which will be incorporated by reference into the Contractors' Construction Quality Management Plan (CQMP). The following activities are included:

### **2.1 Construction Oversight Inspections**

- Perform and report construction inspections for remaining construction items.

- Review and report final documentation of schedule of values in support of Contractors' draw requests.
- Develop diaries and logs for remaining construction items.
- Provide a digital photo and/or video log of the Project area for the remainder of construction. with heavy emphasis on areas with potential claim items/issues and on areas of real/potential public controversy.

## **2.2 Traffic Control**

- Review, monitor, and recommend modification to the Contractors' maintenance of traffic/traffic control operations according to applicable specifications and standards.
- Document and issue deficiency reports to the Contractors on any noncompliance of traffic control devices or layouts.
- Coordinate with the Contractors and the Mobility Authority regarding major traffic disruptions.
- Attend meetings pertaining to the traffic control and maintenance of traffic that are held by the Contractors, designers or interested parties.

## **2.3 Requests for Information (RFI) and Non-Conformance Report Processing and Management**

- Review and facilitate responses on Project RFIs for newly submitted RFIs.
- Prepare new Non-Compliance Reports (NCRs) for non-compliant work issued.
- Update log, and retain all documents associated with RFIs and NCRs.

## **2.4 Shop Drawing Submittals Processing and Management**

- Review new shop drawings, erection drawings, working drawings, Samples, material and product certifications, and catalog cuts and brochure submittal for general conformance with the design plans and specifications submitted by the Contractors. Check that the Engineer(s) of Record have provided required approvals. The Engineer(s) of Record will be responsible for final approval.
- Update log and retain all new documents associated with shop drawings.
- Coordinate with the Contractors on processing, submittal documentation, follow-up activities, and clarifications.

## **2.5 Contractors' Draw Requests**

- Review completeness of the Contractors' submittal in accordance with the requirements of the Contracts, including:
  - Cover Sheet
  - Monthly Progress Report
  - Certification by Construction Quality Control Manager
  - Report of personnel hours
  - Progressed schedule of values

- DBE utilization report
- Cash flow and payment curves
- Updated Project schedule
- Waiver of liens from previous draw requests
- Material on hand invoices
- Lane/shoulder/ramp/cross street rental and/or Liquidated Damages fee report
- Evaluate that the request accurately reflects monies due for acceptable work completed.
- Review and provide required certifications to the Mobility Authority for processing of the Contractors' partial and final pay requests.

## **2.6 Utility and Rail Oversight**

The GEC will provide coordination, support, and assistance for utility related activities. GEC support activities do not relieve the Contractors of sole responsibility for performance of all utility-related activities. Specific activities include:

- Review new (if any) utility plans for compliance with the TxDOT Utility Accommodation Policy, compatibility with the Project features. Betterment inclusion, and constructability.
- Provide oversight review of location, materials, and backfilling of trenches associated with utility adjustments; the GEC is not responsible for actual location of utilities.
- Participate in meetings as necessary to support effective management of the utility and rail coordination process.
- If necessary, provide support to Contractors in scheduling periodic meetings with utility and rail owner's representatives for coordination purposes.
- Support Contractors with negotiating the details of new utility agreements with the utility companies, as requested. Details will include any necessary betterment percentages, indirect costs, plans, estimates, and schedules for the utility companies' activities.
- Review of new utility adjustment agreements including plans, estimates, and property interest.
- Monitor payments from the Contractors to utility owners for utility adjustments and rail owners for flagging operations.
- Provide utility construction monitoring and verification to the extent possible.

## **2.7 Survey Support**

- Perform remaining survey verifications needed to complete verification.

## **2.8 Final Punch List, Final Inspection, Notice of Completion, Close Out**

The GEC will:

- Coordinate with the Contractors, Mobility Authority and TxDOT in the generation of a final punch list.
- Monitor the resolution of outstanding construction items.
- Inspection of punch list completion.
- Verify there are no outstanding claims related to the Contractors' work.
- Provide Notification of Completion to the Mobility Authority.
- Complete all necessary activities to formally close-out the project.

### **3. MATERIAL ACCEPTANCE TESTING (Code 13620)**

The GEC will provide Quality Acceptance testing of remaining materials incorporated into the project. coordinate materials testing operations, and review Material Test Reports. Material testing procedures will include:

#### **3.1 Quality Acceptance**

- Utilize the previously prepared Qualification Program for materials utilized by the project for the construction of the Project in accordance with the QAP.
- Submit construction Quality Acceptance Material Certification letter monthly to the Mobility Authority.
- All material test results will be reviewed by the Construction Manager or Resident Engineer.

#### **3.2 Verification**

- Utilize the previously prepared testing plan in compliance with TxDOT's Guide Schedule of Sampling and Testing for the Project.
- Perform the testing of construction materials utilized on the Project.
- Prepare and manage new Non-Compliance Reports (NCRs) for failing tests as appropriate.
- Update the material testing database.
- Review mill and shop inspection and laboratory tests and field test of construction materials performed by the testing engineer and the off-site materials testing agency.

#### **3.3 Independent Assurance Program**

- Continue the Independent Assurance (IA) Program which evaluates all sampling and testing procedures, personnel, and equipment used as part of an acceptance decision.
- Update documentation of all qualified individuals who perform required tests for acceptance of materials, as needed.
- Verify that laboratories are qualified to perform testing.

### **4. ENVIRONMENTAL COMPLIANCE (Code 13620)**

The GEC will provide staff to review and report on the Contractors' environmental compliance efforts. Specific activities include:

- Oversight review and audits of the Contractors' Comprehensive Environmental Protection Program (CEPP).
- Monitor the Contractors' compliance with the SWPPP plans and permit requirements.
- Issue new NCRs for instances which fall below permit requirements.
- Update database to track and verify new environmental commitments documented in the Environmental Documents and for permit compliance.
- Monitor the Contractors' activities to determine if environmental encounters are being promptly reported and managed in accordance with the Comprehensive Environmental Protection Program (CEPP), and applicable laws and regulations.

## **5. ADDITIONAL SERVICES**

### **5.1 General**

The services listed above are anticipated to cover the range of activities for the oversight of remainder of construction of the Project. However, change can occur at any time during the project term and may involve changed scope, schedule or staffing. Changes to the scope and/or schedule of the work, whether at the request of the Mobility Authority or resulting from changes to the project initiated by the Contractors, may require additional services outside of this scope, or the provision of identified services for an additional period of time.

## **6. LIST OF ASSUMPTIONS**

### **6.1 Project Scope**

The services provided by the GEC as described in this Work Authorization are based upon the Project scope as defined in the Contracts scopes of work and technical provisions. The GEC will be responsible only for those items, as outlined in the scope of services, from the time of the notice to proceed until project completion.

### **6.2 Project Schedule**

The services provided by the GEC as described in this Work Authorization are based upon the current project schedules. Any change to the project schedule dates as noted below may require a supplement to this Work Authorization.



**CTRMA // WSP USA INC. GEC CONTRACT  
MIP & MMIP CONSTRUCTION OVERSIGHT  
WORK AUTHORIZATION NO. 7  
SUPPLEMENTAL WORK AUTHORIZATION 2  
COST TO COMPLETE ANALYSIS**

**FEE ESTIMATE**

CTRMA: MoPac Improvement Project & MoPac Miscellaneous Improvements Project  
Consultant: WSP USA Inc.  
Construction Level Of Effort Estimate: Cost to Complete Estimate [2/11/2019]

	2019												2020		Reg. Hours (165/mo)	OT Hours (15%)	Total Hours	Rate	OT Rate	OH	Profit	Multiplier	Burdened Hourly Rate	Total Labor												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan																							
<b>TASK 1 - Construction Phase Services</b>																																				
<b>Construction Engineering &amp; Inspection</b>																																				
<b>OFFICE</b>																																				
Administrative Assistant	0.05	0.05	0.05	0.05											33	0	33	\$ 27.00	\$ -	1.3993	0.1	2.639	\$ 71.26	\$ 2,351.55												
GEC Program Manager	0.10	0.10	0.10	0.10											66	0	66	\$ 115.00	\$ -	1.3993	0.1	2.639	\$ 303.51	\$ 20,031.76												
Project Accountant (WSP)	0.05	0.05	0.05	0.05											33	0	33	\$ 42.00	\$ -	1.3993	0.1	2.639	\$ 110.85	\$ 3,657.97												
Construction Phased Services	0.10	0.10	0.10	0.10	0.10	0.10									99	0	99	\$ 50.00	\$ -	1.3993	0.1	2.639	\$ 131.96	\$ 13,064.19												
Construction Phased Services	0.15	0.15	0.15	0.15	0.15	0.15									149	0	149	\$ 85.00	\$ -	1.3993	0.1	2.639	\$ 224.33	\$ 33,313.68												
Construction Services Engineer	0.25	0.25	0.25	0.25	0.10	0.10									198	0	198	\$ 30.00	\$ -	1.6944	0.1	2.964	\$ 88.92	\$ 17,605.21												
Information Coordinator	0.10	0.10	0.10	0.10											66	0	66	\$ 40.00	\$ -	1.3993	0.1	2.639	\$ 105.57	\$ 6,967.57												
<b>FIELD</b>																																				
Construction Mgr.	1.00	1.00	0.50	0.50											495	0	495	\$ 200.00	\$ -	0.0000	0.1	1.000	\$ 200.00	\$ 99,000.00												
Auditor/Recordkeeper	0.50	0.50	0.50	0.50	0.25	0.25	0.25								454	0	454	\$ 52.00	\$ -	1.1975	0.1	2.417	\$ 125.70	\$ 57,035.01												
Inspector	1.00	1.00	1.00	1.00	1.00	1.00	1.00								1155	173	1,328	\$ 35.00	\$ 35.00	1.1975	0.1	2.417	\$ 84.60	\$ 112,374.93												
Inspector	1.00														165	25	190	\$ 34.00	\$ 34.00	1.1117	0.1	2.323	\$ 78.98	\$ 14,986.00												
Sr. Inspector	1.00	1.00	1.00	1.00	1.00	1.00	1.00								1155	173	1,328	\$ 44.00	\$ 44.00	1.1117	0.1	2.323	\$ 102.21	\$ 135,755.49												
Inspector	1.00	1.00	1.00	1.00	1.00	1.00	1.00								1155	173	1,328	\$ 25.00	\$ 25.00	1.1975	0.1	2.417	\$ 60.43	\$ 80,267.81												
Senior Project Manager	0.85	0.85	0.85	0.85	0.50	0.50	0.50								809	0	809	\$ 80.00	\$ -	1.1975	0.1	2.417	\$ 193.38	\$ 156,347.73												
Project Engineer	0.50	0.50	0.50	0.50	0.50	0.50	0.50								578	0	578	\$ 67.00	\$ -	1.1975	0.1	2.417	\$ 161.96	\$ 93,529.45												
Scheduler	0.10														17	0	17	\$ 183.24	\$ -	0.0000	0.1	1.000	\$ 183.24	\$ 3,023.46												
														<b>TOTAL LABOR TASK 1</b>										<b>\$ 849,311.80</b>												
<b>TASK 2 - Material Testing, Surveying, Inspection and Toll Operations</b>																																				
Material Testing																								\$ 40,000.00												
Public Involvement																								\$ 46,000.00												
Survey Verification																								\$ 40,000.00												
Toll Operations	0.10	0.10	0.10												50	0	50	\$ 80.00	\$ 80.00	1.6944	0.1	2.964	\$ 237.11	\$ 11,736.81												
														<b>TOTAL LABOR TASK 2</b>										<b>\$ 137,736.81</b>												
<b>TASK 3 - Project Closeout</b>																																				
<b>Construction Engineering &amp; Inspection</b>																																				
<b>OFFICE</b>																																				
Administrative Assistant					0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	371	0	371	\$ 27.00	\$ -	1.3993	0.1	2.639	\$ 71.26	\$ 26,454.98												
GEC Program Manager					0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	74	0	74	\$ 115.00	\$ -	1.3993	0.1	2.639	\$ 303.51	\$ 22,535.73												
Project Accountant (WSP)					0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	74	0	74	\$ 42.00	\$ -	1.3993	0.1	2.639	\$ 110.85	\$ 8,230.44												
<b>FIELD</b>																																				
Auditor					0.25	0.25	0.25	0.75	0.75	0.25	0.25	0.25	0.25	0.25	536	0	536	\$ 52.00	\$ -	1.1975	0.1	2.417	\$ 125.70	\$ 67,405.02												
Project Manager					0.50	0.50	0.50	0.75	0.75	0.50	0.50	0.50	0.50	0.50	825	0	825	\$ 80.00	\$ -	1.1975	0.1	2.417	\$ 193.38	\$ 159,538.50												
Office Engineer					0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	223	0	223	\$ 40.00	\$ -	1.1975	0.1	2.417	\$ 96.69	\$ 21,537.70												
Sr. Inspector								0.25	0.50						124	0	124	\$ 44.00	\$ -	1.1117	0.1	2.323	\$ 102.21	\$ 12,648.03												
														<b>TOTAL LABOR TASK 3</b>										<b>\$ 318,350.39</b>												
<b>FTE (Full Time Equivalent)</b>																								<b>8</b>	<b>7</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>

**TOTAL LABOR [Beginning Dec 2018] \$ 1,305,399.00**

<b>Field Direct Expense</b>	
Field Man Hours	8,234
Man Hours / Month	165
Field Man Months	49.90
<b>TOTAL DIRECT EXPENSE @ \$3,500/Field Man Month</b>	<b>\$ 174,650.00</b>

TOTAL FEE ESTIMATE [From January 1, 2019 to December 31, 2019]	\$ 1,480,049.00
TOTAL EXPENDED TO DATE [From August 1, 2017 to December 31, 2018]	\$ 5,319,890.18
<b>TOTAL FEE ESTIMATE [From August 1, 2017 to June 30, 2019]</b>	<b>\$ 6,799,939.18</b>
PREVIOUSLY APPROVED BASE FEE ESTIMATE (Base + SWA 1)	\$ (6,007,813.17)
PREVIOUSLY APPROVED CONTINGENCY FEE ESTIMATE (SWA 1)	\$ (211,796.72)
BASE AMOUNT SWA 2	\$ 580,329.29
CONTINGENCY AMOUNT SWA 2	\$ 107,003.79
<b>TOTAL NOT TO EXCEED SWA 2</b>	<b>\$ 687,333.08</b>

**GENERAL MEETING OF THE BOARD OF DIRECTORS  
OF THE  
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**

**RESOLUTION NO. 19-009**

**APPROVAL TO EXECUTE AN INTERLOCAL AGREEMENT  
WITH THE TEXAS A&M TRANSPORTATION INSTITUTE**

WHEREAS, the Mobility Authority is committed to implement innovative, multi-modal transportation solutions that reduce congestion and create transportation choices that enhance quality of life and economic vitality; and

WHEREAS, the Mobility Authority has a need for technical and research services, including conducting behavioral studies and other analyses for use in developing initiatives to improve safety, customer service and, ultimately, enhance and the road user experience; and

WHEREAS, the Texas A&M Transportation Institute (“TTI”) has the resources and expertise to provide these services to the Mobility Authority; and

WHEREAS, the Executive Director and TTI have negotiated an Interlocal Agreement in an amount not to exceed \$453,000.00 for TTI to conduct a customer satisfaction and MoPac Express Lane use survey, analyze real world MoPac travel data, assess wrong-way driving characteristics and identify mitigation measures, and provide a research and methodology brief on survey panels; and

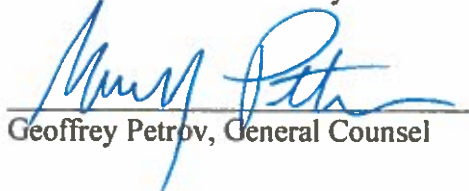
WHEREAS, the Executive Director recommends that the Board approve the proposed Interlocal Agreement with TTI, in the form or substantially in the same form as Exhibit A attached hereto; and

NOW THEREFORE, BE IT RESOLVED, that the Board approves an amount not to exceed \$453,000.00 for the proposed Interlocal Agreement with the Texas A&M Transportation Institute; and

BE IT FURTHER RESOLVED, that the Board authorizes the Executive Director to finalize and execute the proposed Interlocal Agreement with the Texas A&M Transportation Institute in the form or substantially the same form as Exhibit A.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 27<sup>th</sup> day of February 2019.

Submitted and reviewed by:

  
\_\_\_\_\_  
Geoffrey Petrov, General Counsel

Approved:

  
\_\_\_\_\_  
Ray A. Willerson  
Chairman, Board of Directors

**Exhibit A**

# INTERLOCAL COOPERATION CONTRACT

**THE STATE OF TEXAS \*\***  
**THE COUNTY OF BRAZOS \*\***

THIS CONTRACT is entered into by and between a local government and the State agency as shown below Contracting Parties, pursuant to the authority granted and in compliance with the provisions of "The Interlocal Cooperation Act, TEX. GOVT. CODE ANN." § 791.001, et. Seq.

## **I. CONTRACTING PARTIES:**

Performing Party: Texas A&M Transportation Institute (TTI)  
The Texas A&M University System - VID # 37277277275000

Receiving Party: Central Texas Regional Mobility Authority

## **II. STATEMENT OF SERVICES TO BE PERFORMED:**

Central Texas Regional Mobility Authority Technical Support Services -- See Schedule A

All electronic information transmitted to or housed by the Performing Party is the responsibility of the Performing Party and will be protected in accordance with Texas Administrative Code (TAC) 202 as well as any other applicable state or federal mandate unless additional protection is requested in writing by the sponsor.

## **III. BASIS FOR CALCULATING COSTS:**

Cost Reimbursable

## **IV. CONTRACT AMOUNT:**

The total amount of this contract shall not exceed: Four Hundred and Fifty-Three Thousand, \$453,000. The maximum amount payable under this contract is contingent upon availability of funds.

## **V. PAYMENT FOR SERVICES:**

Receiving Party shall pay for services received from appropriation items or accounts of the Receiving Party from which like expenditures would normally be paid, based upon vouchers drawn by the Receiving Party payable to Performing Party.

Payments for services performed shall be billed monthly.

Payments received by the Performing Party shall be credited to its current appropriation items(s) or account(s) from which the expenditures of that character were originally made.

## **VI. DISPUTES:**

The dispute resolution process provided in Chapter 2260, Texas Government Code, and the related rules adopted by the Texas Attorney General pursuant to Chapter 2260, shall be used by the Performing Party and the Receiving Party to attempt to resolve any claim for breach of contract made by the Receiving Party that cannot be resolved in the ordinary course of business. The Receiving Party shall submit written notice of a claim of breach of contract under this Chapter to the Assistant Agency Director and Chief

Financial Officer of the Performing Party, who shall examine Receiving Party's claim and any counterclaim and negotiate with Receiving Party in an effort to resolve the claim.

**VII. PUBLIC INFORMATION ACT:**

The Receiving Party acknowledges that the Performing Party is obligated to strictly comply with the Public Information Act, Chapter 552, Texas Government Code, in responding to any request for public information pertaining to this Agreement, as well as any other disclosure of information required by applicable Texas law.

**VIII. TERM OF CONTRACT:**

Payment under this contract beyond the end of the current fiscal biennium is subject to availability of appropriated funds. If funds are not appropriated, this contract shall be terminated immediately with no liability to Receiving Party. This contract begins when fully executed by both parties and terminates on June 30, 2020.

**IX. ADMINISTRATIVE CONTACTS:**

**For Performing Party:**

**Pricing Proposal or Pre-award:**

Mr. Chris Slape  
Senior Contract Negotiator II  
Sponsored Research Services (SRS)  
400 Harvey Mitchell Parkway South,  
Suite 300  
College Station, Texas 77845  
Tel. 979-845-6280  
Email: cslape@tamu.edu

**Administrative Contact after Execution:**

Ms. Natilie Johnson  
Senior Projects Administrator  
Sponsored Research Services (SRS)  
400 Harvey Mitchell Parkway South,  
Suite 300  
College Station, Texas 77845  
Tel. 979-845-9852  
Email: ndjohnson@tamus.edu

**For Receiving Party:**

**Administrative Contact:**

Contact Name  
Contact Title  
Company Name  
Address  
City, State Zip Code  
Tel.  
Email:

**Invoice Submission Contact:**

Contact Name  
Contact Title  
Company Name  
Address  
City, State Zip Code  
Tel.  
Email:

**X. TECHNICAL CONTACTS:**

**For Performing Party:**

Tina Geiselbrecht  
Research Scientist  
Texas A&M Transportation Institute  
505 E. Huntland Dr., Suite 455  
Austin, TX 778752  
Tel. 512-407-1116  
Email: t-geiselbrecht@tti.tamu.edu

**For Receiving Party:**

Contact Name  
Contact Title  
Company Name  
Address  
City, State Zip Code  
Tel.  
Email:

**XI. EQUAL EMPLOYMENT OPPORTUNITY:**

The Texas A&M University System serves all persons regardless of race, color, sex, religion, national origin, age, disability, genetic information or veteran status. The Performing Party agrees to comply with Executive Order 11246, entitled "Equal Employment Opportunity," (EEO) as amended by Executive Order 11375 and as supplemented by Department of Labor regulations (41 CFR Part 60).

**XII. THE AGREEING PARTIES certify that:**

1. The services specified above are necessary and essential for activities that are properly within the statutory functions and programs of the affected agencies of State Government.
2. The proposed arrangements serve the interest of efficient and economical administration of the State Government.
3. The services or resources agreed upon are not required by Article XVI, Section 21 of the Constitution of Texas to be supplied under contract given to the lowest responsible bidder.

**XIII. RECORDS AND OWNERSHIP:**

1. The Performing Party agrees to maintain all books, documents, papers, accounting records, and other evidence pertaining to costs at its office during the contract period and for four years from the date of final payment under the contract. These materials shall be made available for inspection and copying by the Receiving Party, Texas Department of Transportation, the State Auditor's Office, and by their authorized representatives. If the contract is federally funded, these materials shall also be made available for inspection and copying by the U.S. Department of Transportation and by the Office of the Inspector General.
2. This contract does not convey ownership of or any other rights to any work product, documentation, data or other information of any kind resulting from this contract to the Performing Party. All work product, documentation, data or other information of any kind resulting from this contract shall be the property of Receiving Party, and Receiving Party may use, copy, make, reproduce, or publish them without restriction and to have and permit others to do the same. Subject to any applicable exception to the Texas Public Information Act, Receiving Party agrees to allow the Performing Party to use and publish information resulting from this contract for research, academic, scholarly and other non-commercial educational purposes.

**RECEIVING PARTY** further certifies that it has the authority to request for the above services by authority granted in TEX. GOVT. CODE ANN." § 791.

**PERFORMING PARTY** further certifies that it has the authority to perform the services agreed upon above by authority granted in Chapter 85, Texas Education Code.

[Signature Page Follows]

*Signature Page to Agreement*

The undersigned parties bind themselves to the faithful performance of this contract.

**PERFORMING PARTY**

**RECEIVING PARTY**

Texas A&M Transportation Institute \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

**SCOPE OF SERVICES**

Central Texas Regional Mobility Authority Technical Support Services

This scope of work outlines four major tasks that will be performed by TTI for CTRMA.

1. A survey of central Texas CTRMA toll facility users and non-users to (a) gain a deeper understanding of customer satisfaction and (b) explore factors motivating users and non-users to drive on the newly implemented MoPac Express Lane.
2. Examine travel data collected from the transponder readers located along the MoPac Express Lane (EL) and General Purpose Lanes (GPLs) to gain a better understanding of travel patterns on the lanes. Combine these data with the findings from the survey data (item 1) to get a total picture of EL usage patterns.
3. An assessment of wrong-way driving characteristics and identifying mitigation measures.
4. A research and methodology brief on survey panels.

**Task 1. Customer Satisfaction and MoPac Express Lane Use Survey**

This mixed method data collection effort will serve two primary goals.

Goal 1: CTRMA is interested in developing a robust customer satisfaction program. An integral component of any customer satisfaction program is assessing and evaluating customer satisfaction. One way to do this is through customer surveying. This task will outline the work that TTI will perform to help CTRMA develop a customer satisfaction baseline, through survey research methods.

Goal 2: In late 2017, the MoPac Express Lane became fully operational. This task outlines the work TTI will perform to help CTRMA better understand the behavior of travelers using the MoPac Express Lane and under what circumstances the lanes are used.

**Subtask 1.A. Kick-Off Meeting**

This task begins with a meeting with CTRMA to present the proposed scope and timeframe for the project. This will allow researchers and CTRMA to make any minor adjustments needed and be sure everyone has a clear understanding of the goals for this task.

- Deliverable 1.A.1.: Kick-Off Meeting Agenda
- Deliverable 1.A.2.: Kick-Off Meeting Summary Notes

**Subtask 1.B. Literature Review**

The focus of the review will be to identify current customer satisfaction survey efforts that are being implemented by toll agencies in the United States and beyond. The review will focus on the following topical areas:

- Survey design and content, including what factors and metrics are used to quantify customer satisfaction,
- Sample design,



- Data analysis and presentation,
- Implementation of research results,
- The effect of incentives on customer satisfaction response rates and the potential to bias results
- Maintaining customer satisfaction, including a discussion of the frequency and manner in which future customer satisfaction surveys might be implemented.
- Examination of previously published work focused on continued/longitudinal use of managed lanes over time by individual transponders/toll tags,

The TTI team will use TTI's in-house librarian to access numerous journals and databases, such as the Transportation Research Board's Transportation Research Information Services and Google Scholar. The team will also review relevant work that TTI has conducted for various toll agencies, including CTRMA, North Texas Toll Authority, Harris County Toll Road Authority and State Road and Tollway Authority.

TTI will query CTRMA staff and contractors as well as other toll agency operators to identify and define toll road users, potential users and non-users. This vetting of the sample frame will benefit the effectiveness and efficiency of the survey design and yield a richer dataset for analysis.

The results of this task will identify best practices that may be considered for implementation in this work.

- Deliverable 1.B.1: Technical memorandum documenting literature review findings.

### **Subtask 1.C. Survey Design**

The survey design will be informed by the literature review and best practices. It will consist of two banks of questions: a core set of questions that focus on customer satisfaction, and a battery of questions focused on the MoPac corridor.

The core questions will address topics such as those identified below.

- What is the relationship between customer satisfaction and factors that are important for using a toll facility? How important is each factor that makes up overall customer satisfaction?
- How can the survey be used to help estimate if and to what degree customer satisfaction is correlated with a customer's preference to pay for tolls using a transponder, mobile application or Pay-By Mail (PBM)?
- How can the survey help CTRMA evaluate the benefit that may result from offering digital technology (e.g., technology that allows CTRMA to communicate directly with customers or allows toll payments through mobile applications or within connected vehicles)?

The MoPac corridor questions will address topics such as those identified below.

- How are travelers adjusting to this express lane option?
- Do stated usage patterns of transponder owners match those of PBM travelers?

- Do travelers use any information (apps, roadside signs, etc.) to help make their decision to use or not use the express lane?
- How does roadway configuration impact express lane use?
- Are there traveler characteristics that are common among those that sometimes use the express lane versus those that never choose the express lane?

In addition to capturing data elements that address the literature review findings and those presented above, the survey will capture elements that can be used to segment the survey population. These may include, but are not limited to the following.

- Facility used or used most often,
- Trip purpose,
- Geography (home, work, trip origin, trip destination, etc.),
- User type (Pay By Mail, mobile application, or transponder),
- Account type (auto or manual),
- Customer type (passenger or commercial),
- Demographics (income, race/ethnicity, education, employment, etc.).

TTI also proposes to include a question that gauges interest of survey respondents in participating in a CTRMA Knowledge Panel. This panel could serve as a resource, which CTRMA could query about various toll related issues. This will be an important element in further developing a robust customer satisfaction program.

Once the instrument has been finalized by all project team members, it will be delivered to the data collection contractor for programming, testing and data collection.

The median survey length will be 15-minutes.

It is important to note that the project will need to be reviewed and approved by Texas A&M University Institutional Review Board to ensure human subjects protection protocols and in place and implemented for the project.

- Deliverable 1.C.1.: Draft Instrument
- Deliverable 1.C.2.: Final Instrument

### **Subtask 1.D. Data Collection Sub-Contractor Selection and Management**

Because the project will necessitate mixed method data collection, TTI will work with the Texas A&M Purchasing Department to develop an RFP to select a contractor to perform the recruitment and data collection. This effort will include the following:

- Development of the solicitation notice.
- Review of responses received .
- Selection of a vendor .
- Execution of a contract.
- Management of the contractor.

**Subtask 1.E. Sample Design**

TTI proposes to complete a total of 2,000 surveys, distributed by facility and user type as suggested in Table 1.

*Table 1. Web Survey Sample Distribution*

<i>Sample Type</i>	<i>Facility Use and Frequency of Use</i>					
	<i>U.S. 183A Toll Road</i>	<i>U.S. 290 Toll Road</i>	<i>SH 71 Toll Lane</i>	<i>MoPac</i>		
				<i>Use ML Frequently</i>	<i>Use ML Periodically</i>	<i>Never Use ML - Use GPL</i>
<b>Customer Satisfaction Core</b>	500	500	500	500		0
<b>MoPac Corridor Supplement</b>	0	0	0	250	250	500

Two thousand surveys will be collected for the customer satisfaction core, 500 from each of the four CTRMA toll facilities. The sample size for the MoPac Corridor Supplement will be 1,000. However, approximately 500 of these surveys will be shared with the customer satisfaction core. That is to say, these 500 will first answer the core questions, then be asked the MoPac Corridor Supplement. The balance of the MoPac Corridor Supplement will be comprised of individuals that never use the managed lanes, but do use the general purpose lanes. At present, these are sample targets, not hard quotas. The literature review will help flesh out the sample design, by hopefully refining what is known about sample universe.

A customer or user will be anyone who has used any of CTRMA’s four regional toll facilities in the last month: 183A Toll Road, MoPac Express Lanes, 290 Toll Road, and/or 71 Toll Lane facility.

The geography for this survey, will be a six county area: Williams, Travis, Hays, Bastrop, Caldwell, and Burnet. We assume that most users will be in Travis and Williamson. These two counties not only “house” facilities, they are also the most heavily populated. There will be no geographic targets.

In order to be eligible to participate in the survey, a respondent must be at least 18 years of age, a licensed driver, and speak English well enough to participate in a survey in English

Because CTRMA toll facility customers can pay their tolls in two ways (toll tag or PBM), it is important that the sample plan incorporate this variable into the sample strategy.

The CTRMA PBM contractor has agreed to provide a mailing address database of these customers. This will facilitate a phone match, and subsequent mixed method data collection.

Because TxDOT cannot release tag holder information for non-TxDOT sponsored research, the project team will have to purchase a sample and screen the general population for tag holders and MoPac general purpose lane users. TxDOT has provided estimates of TxTag accounts and tags by county (see Table 2).

## SCHEDULE A

*Table 2. TxDOT Estimates of Active TxTag Accounts and Tags by County*

<i>County</i>	<i>Active Accounts</i>	<i>Active Tags</i>	<i>Occupied Housing Units (OHU) from American Community Service</i>	<i>Percent OHU with Accounts</i>
<b>Bastrop</b>	20,927	37,715	26,015	80.40%
<b>Burnet</b>	7,887	15,117	16,545	47.70%
<b>Caldwell</b>	7,197	12,578	12,894	55.80%
<b>Hays</b>	39,410	70,366	68,045	57.90%
<b>Travis</b>	305,024	512,905	447,561	68.20%
<b>Williamson</b>	179,552	313,805	170,051	105.60%
<b>Total</b>	559,997	962,486	741,111	75.60%

Again, the literature review will help flesh out the sample design, by hopefully refining what is known about sample universe. To the extent possible, TTI will work with the data collection contractor, CTRMA, CTRMA contractors and TxDOT to help ensure that the final sample of completed surveys is representative with regard to facility and payment type, and meets the analytical requirements of the project.

TTI would encourage CTRMA to consider offering a toll credit or discount to recruits as an incentive to participate. This method worked well in the recent CTRMA Touch Point Survey.

- Deliverable 1.E.1.: Sample Plan
- Deliverable 1.E.2.: Incentive Management Plan

### **Subtask 1.F. Data Collection**

TTI will work with the selected data collection contractor to develop a data collection plan that will guide the field protocol. The plan will include, but not be limited to, the following:

- Sample management strategies.
- Interviewer selection and training strategies.
- Data management strategies, including QA/QC.
- Dialing protocols, including schedule of active dialing hours and day of week.
- Silent monitoring protocols.

TTI envisions that data collection will last approximately six weeks. Throughout the process, TTI will provide CTRMA with weekly updates on progress toward goals, issues encountered and suggested resolutions.

Because the sample frame for tag holders is not well defined, TTI suggests a rolling launch of the survey that will allow for a pilot testing period for the project. This would include the collection of approximately 300 surveys, then briefly halting data collection for a period of 24-48 hours, during which the data is reviewed. The focus of the review would be to validate assumptions about sample distributions by facility, user type, and payment type for both BPM customers and tag holders. In the event that the data review suggest that the assumptions made during the

design phase were inaccurate, this early identification would allow TTI to establish a plan for finishing the project out in a manner that is mutually agreeable to all project team members.

- Deliverable 1.F.1.: Data Collection Plan
- Deliverable 1.F.2.: Pilot Technical Memorandum

### **Subtask 1.G. Data Processing.**

At the end of the field period, TTI and the data collection contractor will subject the data to a series of manual and automated data checks to ensure the data is error-free. The focus of this process is to identify errors such as missing data or out of range data. The project team has a strict set of quality control mechanisms to assure the data is acceptable and there are no errors. After all records from the survey have been processed and corrections made, the analysis will begin. The proposed project budget does not include weighting of the survey sample.

- Deliverable 1.G.1.: Cleaned survey dataset
- Deliverable 1.G.2.: Data dictionary

### **Subtask 1.H. Analysis and Reporting.**

Prior to beginning the analysis, TTI will develop a report outline that summarizes how TTI intends to present the summarized survey data. Upon mutual agreement on the outline from all members of the project team, TTI will begin with data preparation, such as creating different forms of data variables. Once the analytical dataset is finalized, the team will utilize a comprehensive descriptive analysis to characterize the survey data profile and develop a detailed understanding regarding customer satisfaction and use of the MoPac corridor.

- Deliverable 1.H.1.: Final report highlighting all of the research, the results of the project, survey results, and suggestions
- Deliverable 1.H.2.: PowerPoint presentation for presentation to interested stakeholders.

**Estimated Task 1 Budget: \$ \$286,000 (includes \$ 220,000 for data collection subcontractor)**

### **Task 2. Analysis of Real World MoPac Travel Data**

This task seeks to understand the behavior of travelers using the MoPac express lane by analyzing real world data. Understanding this behavior will greatly enhance understanding of how travelers perceive the benefits of express lanes and increase the ability to predict future demand for express lanes. Like Katy Freeway in Houston, MoPac has transponder readers on both the general purpose lanes (GPLs) and express lane (EL). This allows for the tracking of trips on the roadway and the ability to observe travel patterns and lane choices over time. This type of data and analysis has provided amazing insights into travel behavior on the Katy Freeway. The analysis will examine:

- How travelers are adjusting to the new MoPac EL and better understand how the ramp-up period impacts travel. For example, does an increase in EL use stem more from new EL travelers, current EL travelers who make additional EL trips, or maybe new travelers to MoPac.

- Do usage patterns on MoPac resemble those of Katy Freeway?
- How are travelers valuing their travel time savings on MoPac?
- How do travelers adjust to the dynamic toll rate? Is it possible to measure a toll price elasticity?
- How does overall congestion impact use of the lanes, particularly peak versus off-peak travel?

When combined with the survey data from Task 1, research would also examine:

- Are there reasons why the PBM travelers do not get a transponder? Particularly frequent travelers of MoPac.
- Are there traveler characteristics that are common among those that sometimes use the EL versus those that never choose the EL?
- Do stated usage patterns of transponder owners match those of PBM travelers?

Note that this research task focuses exclusively on MoPac since that facility has the parallel general purpose lanes with transponder readers. General purpose lane use by transponder owners is critical for answering many of the research questions above. Therefore, the task does not include other toll roads in the Austin area and only includes people who pay using a transponder.

A significant portion of this task will be converting the massive number of transponder reads along MoPac into trips. This involves identifying when reads of the same transponder represent a continuous trip and when they are separate trips. It also involves cleaning the data. Once individual trips are developed the dataset can then be used to answer the questions above.

**Deliverables:**

- Deliverable 2.1. A dataset of trips on MoPac by transponder equipped vehicles.
- Deliverable 2.2. A final report highlighting the analysis done to answer the questions listed above.

**Estimated Task 2 Budget: \$ 116,000**

**Task 3. Assessing Wrong-Way Driving Characteristics and Identifying Mitigation Measures**

This task seeks to understand the wrong-way driving problem on CTRMA roadways in order to identify locations where mitigation measures, such as detection technologies, should be installed. In this task, TTI researchers will conduct the following activities to understand the wrong-way driving problem on CTRMA roadways:

- Obtain and analyze historical wrong-way driving crashes and 911 call data.
- Perform land use data collection and analysis.
- Perform field inspections/observations,
- Review interchange/exit ramp designs (existing and/or under construction).

TTI researchers will also consider other ITS technologies (such as tolling sensors, cameras, loop detectors, etc.) that exist or are planned for the roadways. Based on these data, TTI researchers will identify and recommend potential mitigation measures that can be used to deter wrong-way movements. Potential mitigation measures could include active warning and detection systems, detection only, and/or connected vehicle wrong-way driving applications. This process will first

be applied to 183 South to help CTRMA identify locations where mitigation measures should be installed on 183 South. Future analysis may include additional CTRMA roadways.

- Deliverable 3.1.: Technical memorandum documenting the results of the research and suggestions for implementing the research.
- Deliverable 3.2.: PowerPoint presentation for interested stakeholders.

**Estimated Task 3 Budget: \$ 41,000**

#### **Task 4. Research and Methodology Brief on Survey Panels**

In July 2015, TTI published research for the Transportation Policy Research Center that documented the practices and uses of online communities in both the public and private sector. Online communities and their cousins, survey panels, serve to offer agencies insights and opinions about any number of topics from a representative sample. The panels and communities are cultivated so that a representative sample is ready “on-call” at any time to offer opinions and answer questions. This provides a mechanism to quickly gather data and/or test policies, theories, or practices. The online communities and survey panels operate in a virtual space. Depending on how the community or panel is organized, users can interact with one another and the sponsoring agency. It is an effective mechanism to quickly gather feedback.

Since the report initial report was published in 2015, advances in technology have made this engagement mechanism even more promising. This task would update the research to document new technology that is available to initiate and maintain this type of feedback mechanism. The research will focus on, but not be limited to, the use these panels by government or public sector agencies. The findings will be documented in a succinct research brief and an accompanying frequently asked questions (FAQ) document. The team will make this information available to directors at CTRMA. After the directors have had an opportunity to review the research, a member of the research team and the CTRMA Innovation officer will meet individually with directors to determine how this feedback mechanism can be structured to meet their objectives.

- Deliverable 4.1.: Research brief that documents that updates methodologies for initiating and maintaining online communities and/or survey panels.
- Deliverable 4.2.: A technical memorandum that documents the needs of CTRMA directors in the use and operation of an online community and/or survey panel.

**Estimated Task 4 Budget: \$ 10,000**

## (Draft) CTRMA Research Plan

CTRMA’s mission as laid out in the 2018-2019 Strategic Plan is “to implement innovative, multi-modal transportation solutions that reduce congestion and create transportation choices that enhance quality of life and economic vitality.” The Strategic Plan also lays out several goals and associated strategies for meeting this mission which include commitments to:

- Deliver Multi-Faceted Mobility Solutions
- Invest in Efforts that Extend Beyond Roadways
- Employ a Collaborative Approach to Implementing Mobility Solutions
- Explore and Invest in Transformative Technology and Adopt Industry Best Practice

While many programmatic efforts are planned and underway for meeting these goals and carrying out these strategies, research fulfills a critical role in informing some of these efforts, providing measures for benchmarking and tracking metrics, and in monitoring and contributing to Industry practice.

Furthermore, with technology and innovation being at the core of the agency’s mission it is critical to monitor emerging and innovative technologies which are advancing at a rapid pace in our industry. For example, more than ten states now have significant CV pilot programs, allow AV testing on public roads, and/or are in the planning stages for AV/CV programs, projects, and deployments. In assessing this and other technology and multi-modal solutions, there are a variety of open questions and issues that need research, planning, and resolution at CTRMA and regionally to enable successful deployment of emerging technology, including CV/AV.

The purpose of this roadmap is to facilitate CTRMA’s active assessment of transportation and mobility technology and innovation trends and their related issues and inform decision-making regarding the opportunities that are fit and proper for the agency, given strategic priorities.

This roadmap is comprised of four sections.

- First, in the section below, the Innovation team is compiling a catalog of technology trends and research directions that are current impacting or being introduced into transportation systems, nationwide. The catalog will be narrowed to critical trends for focus by CTRMA; these are trends that align with our strategic priorities and problems/need use cases.
- Next, research projects are outlined in Section 2. This include CTRMA-funded internal research and projects in which CTRMA is a co-sponsor or contributor to a local or industry research or innovation project.
- Finally, Section 3 (Currently in development) contains detailed research summaries for the planned, CTRMA-funded research projects identified in Section 2.

### Section 1: Technology Trends and the Opportunities for CTRMA

The following table is a compilation of broad transportation technology trends resulting from an industry literature and conference review and meetings/discussions with private industry and regional agency stakeholders.

Trend	Description	Tangential Trends	Opportunities
1. Big Data, including IoT—form the basis for other technology trends.	Connectivity and IoT enabling the sharing of data	Big data analytics, dashboards Blockchain Data sharing across agencies, companies and the public Connectivity: 5G and DRSC	<ul style="list-style-type: none"> <li>• Improved system reliability due to better data on real time travel conditions.</li> </ul>



			<ul style="list-style-type: none"> <li>Improved dynamic system management due to data availability and integration</li> </ul>
2. Advanced Vehicle Technologies	Connected Vehicles, Autonomous Vehicles, Electric Vehicles, Alternative Fuel Vehicles	These are related to the other trends, primarily V2I and V2X, 5G, DRSC and connected corridor activities.	<ul style="list-style-type: none"> <li>Safety improved due to reduction in driver error</li> <li>EV/AFV will reduce GHG emissions</li> </ul>
3. Shared and On-Demand Mobility Options, technology enabled	New mobility options that possess the potential to reduce congestion and/or lessen the impact of driving alone; often powered by technology or mobile applications. Mobile applications for wayfinding, communicating with drivers on roadway conditions and incidents, and facilitating the use and payment of mobility options, including tolls; eventual V2V and V2X	Transit, park and ride, transportation demand management (including carpool, telework, flex schedule) and everything shared mobility and mobility-on-demand. Mobile apps including WAZE, Google Maps, Metropia, Mobility as a Service and Mobility-on-Demand, Passport, Bankpass, etc.	<ul style="list-style-type: none"> <li>Increased mobility &amp; travel options (than driving alone) due to shared mobility choices</li> <li>Improved system reliability due to better data on real time travel conditions.</li> <li>Improved dynamic system management</li> </ul>
4. Connected and Integrated Transportation Systems	Smart infrastructure, mobile payment methods, interoperability of payment across systems, real-time traveler information, integrated corridor management	Interoperable, mobile based payment methods, dynamic management systems, traveler information, smart pavements and bridges, Wrong Way Driving	<ul style="list-style-type: none"> <li>Safety improved due to reduction in driver error</li> <li>Improved system reliability due to better data on real time travel conditions.</li> <li>Improved management of transportation system assets</li> <li>Improved dynamic system management</li> </ul>
5. Technology Developments affecting freight and logistics	drones and robots to transport / deliver goods, efficient vehicle routing and efficiency such as platooning of trucks)	Connected Corridors, V2X Communications,	<ul style="list-style-type: none"> <li>Creation of new jobs in growing advanced technology industries</li> </ul>

### Research Needs Statements

The following set of “use cases” present research needs in the form of “We want to” statements. Each is followed by a set questions that research and / or technology (or a combination of) would answer.

1. Wrong Way Driving Tech. We want to prevent wrong way driving on our facilities
  - a. What is the appropriate and state-of-the art technology for detecting WWD and communicating WWD to drivers and emergency teams?
  - b. To what extent (timing, level of effort and investment) do we need to install technology before it will be standard in CAV, making our investment obsolete?
  - c. Can we do a better job at designing facility/road projects to prevent WWD?
  
2. Customer Data and Insights. We want to provide data-driven traffic incident and travel information to drivers and users of our facilities by using programs that are robust in the capabilities and more capable of engaging with our customers/community and delivery alerts. This means we need to have a platform to store data and interface / venues to “push” out customer communications. The concept is to be able to send all types of alerts directly from the same user interface.
  - a. Should CTRMA invest in the development of an App or push data that any existing App can use to push information to drivers?
  - b. What are the venues / tools for to push information to drivers, beyond Apps, and which emerge as the best practice? (DMS, Website, Text Subscriptions, partnerships with

TV/Radio stations). There cannot be only one—as different tools can be used for specific reasons, capabilities (text messaging vs push notification to mobile applications to emails or voice calls or digital signs)

- c. Who are the providers of communication tools? (Everbridge—the system Florida consolidated on for emergency managers;)
  - d. What is the best format to host data (e.g., Data Hub) that is pushed to private/public sector?
  - e. What are the best practices of emergency communications? Are there lessons learned we can apply to planned and unplanned incident communications? (e.g., Florida is an early adopter of the new concept of incident zones—geofenced areas customer can sign up for notifications on incident / events)
3. Road Use and Pricing. We want to protect our interests associated with future policies affecting the tolling industry including road user charges, interoperability and privatization of toll payments
    - a. What are the future policies that could affect our tolling interests (RUC, VMT, Automated tolling, Payment with mobile app/CV or smart car)?
    - b. What practices are currently being piloted or studied?
    - c. Are there completely new models that would result in our not having to deal with customers at all—credit card or bank model?
  4. Customer Insights. We want to understand our customer’s travel behaviors and satisfaction levels to better inform our planning and marketing efforts.
    - a. Do we have ready-access to origin and destination and driving behavior data (e.g., information on propensity and frequency to use our facilities versus non-tolled roadways, quantify market potential for new facilities and mobility services, assess attitudes and opinions about our facilities and on a range of mobility and transportation topics, etc.)?
    - b. What studies have been previously completed and is there planned survey or other related studies?
    - c. How can travel behavior data be used to better understand how our roads are used, be used to better manage our traffic flows, and plan for new facilities?
    - d. Can customer satisfaction research be crafted to inform continual improvement?
  5. Big Data. We want to make use of our own facility data to better quantify, measure and communicate congestion levels and the contributions of our facilities in mitigating congestion.
    - a. What data is available?
    - b. Are there regional sources of data from other agencies that could supplement our internal data sources?
    - c. Are there systems in place to facilitate the transfer of data between agencies? Are data sharing agreements needed? Standards for data format to facilitate data sharing?
    - d. What are the sources of external, third party data we could purchase?
    - e. What are the advantages and limitations of third-party data?
  6. Customer Insights on Digital Technologies. We want to address the declining participation in the electronic tag usage, anticipate customer needs in a connected vehicle future, and assess how digital technology could meet the needs of our customers.
    - a. What is the level of digital technology “readiness” among our customers?

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- b. Which technology should we develop and manage or purchase from private companies to meet the current and future levels of readiness?
- c. Are our facilities “future ready” for connected vehicles and other emerging technology?
- d. What are the issues involved and the best practice for digital mobile payment of tolls?

## Section 2: Research Roadmap

### CRTMA Sponsored Research

Project Title / Technology Trend	High Level Description of Outcomes	Research Lead	Cost	Schedule	Status
1.1 Emissions and Fuel Consumption Analysis: MoPac Express Lane	Estimation of the air emissions and fuel consumption benefits of the EL versus GP lanes; estimation of mode-shift from passenger vehicles to transit buses that use the EL	CAPCOG	\$10,000	6 mos Dec 2018-June 2019	In progress Dec 2018 - April 2019
1.2 Analysis of Real World MoPac Travel Data	Improve ability to predict EL use for future facility planning; insights on the influencing factors behind decisions to use EL	TTI	\$116,000	12 mos	ILI with TTI currently under review; anticipate approval in Feb 2019
1.3 Customer Satisfaction, MoPac travel behavior and digital readiness Survey	Regional survey to develop a baseline measure of satisfaction of CTRMA facilities, assess behavior and use of MoPac Express Lane and digital readiness.	TTI	\$286,000	9 mos	ILI with TTI currently under review; anticipate approval in Feb 2019
1.4 Research and Methodology Brief on Web-based Survey Panels	Obtain regular and frequent insights from a pool of customers and interested stakeholders on CTRMA topics of interest	TTI	\$10,000 (Additional funding once)	4 mos	ILI with TTI currently under review; anticipate approval in Feb 2019
1.5 Assessing Wrong-Way Driving Characteristics and Identifying Mitigation Measures	Understand wrong-way driving on 183S in order to identify where mitigation measures (detection technologies) should be installed	TTI	\$41,000	6 mos	ILI with TTI currently under review; anticipate approval in Feb 2019
1.6 Focus Groups with RMA Users/Non-Users (Follow on to Mike's focus group)	Insights on awareness levels of how EL "work" and elicit opinions and ideas for improving communications (use of DMS, mobile applications)	CTRMA (Mia Zmud)	\$25,000 (ongoing monthly if additional funding available 75K)	1 month February 2019	Getting estimate from local focus group facility to recruit and host 3-4 groups.
1.7 Review of Data Sources for Origin and Destination analyses	Understanding of the external data sources that provide information to support OD analysis and other.	WSP (Jessica K)		4 mos October 2018-January 2019	In progress.
1.8 Emissions and Fuel Consumption Analysis: SH 45;	Estimation of the air emissions and fuel consumption benefits of new facilities, estimation of mode-shift from passenger vehicles to transit buses that use the EL	CAPCOG	\$40,000	12-18 mos 2020 budget	These projects will be funded in 2020
1.10 Regional Summit on Innovative Technology	Interagency workshop and collaboration on innovative technology	CTRMA	\$5000	July 2019	TxDOT in agreement
1.11 Flex Incentive Pilot (Modeled after SRTA)	Pilot a program to incentivize drivers to flex their commutes outside of peak traffic.	CTRMA	2020 Budget	TBD	Planning.

Project Title / Technology Trend	High Level Description of Outcomes	Research Lead	Cost	Schedule	Status
1.12 Knowledge Panel Research and Customer Satisfaction	Implement findings from 1.4 and conduct annual customer satisfaction study	TTI	2020 Budget	Ongoing	These projects will be funded in 2020

### CRTMA Cooperative Research (co-funded or in-kind resource)

Project Title	High Level Description of Outcomes	Research Lead	Cost	Schedule	Status
2.1 Society of Automotive Engineers V2X Message Set for Tolling	Set of standards tolling agencies can adopt when ready for V2V/V2I communications	TBD/SAE Cooperative with 4-5 other tolling agencies	TBD Est. cost share 30K-40K	TDB	SAE Committee chair (Susanne Murtha) is seeking confirmation from other tolling agencies (MDxway, BATA, SRTA)
2.2 Blockchain Pilot involving tolling (industry expert and attend a half-day blockchain use-case work shop 4/29 with the TAMU Trans Tech Conference	Accelerate research and test bed pilots for machine (vehicle or mobile phone) to machine (tolling company) payments using stable tokens-based.	TTI-Ginger Goodin	No cost-this is an in-kind industry expert	6 mos Est. Jan-June	Project is pending final approval on behalf of TAMU system.
2.3 Autonomous Vehicle Acceptance in Central Texas	Awareness and acceptance levels of AV	TTI-COA	TBD Est cost share 30K-40K		COA is checking with CTRMA, Cap Metro and CAPCOG to co-fund
2.4 SeatsX Evaluation (on-line market place for seats on vehicles for carsharing/carpooling-driver/rider matching)	Assessment of SeatsX and prospects for developing a Texas market for vehicle seats.	NCTCOG & CTR-UT Texas Innovation Alliance	No cost-evaluation assessment	6 mos Est Jan-June	TBD
2.5 FHWA Cooperative Automation Research Mobility Applications (CARMAHUB) to support CV deployments (Join Austin Team)	Coordinated effort to support CV deployments region-wide using the same "middleware" (FHWA CARMAHUB)	City of Austin and FHWA	No cost	TBD	Jason Jon Michael to followup with Jeff Dailey; Austin team kick off in early 2019 (COA, CTRMA, TxDOT ITS Division, TxDOT Austin District)

### Other Research Efforts (to further needs assessment and decision-making for funded to cooperatively funded research)

#### 3.1 Topics Under Investigation

##### 3.1.1 MOKAN Connected Corridor

##### 3.1.2 Mobile App for driver communication and possibly toll payment

#### 3.2 Research and Technology Briefs - deep dive white papers to explore emerging transportation technology, systems, processes, or best practices and recommend whether each is a good fit for CTRMA. These will be used to inform decision-making and will serve as content for thought leadership outreach and engagement. (Researched and compiled by GECs, internal staff):

##### 3.2.1 Big Data—What is the potential for Big Data to transform our industry (Mia is coordinating this)

##### 3.2.2 Smart City Innovations in Procurement—How are other agencies and “Smart Cities” pursuing innovation-related procurements and what are the lessons from Smart City and Connected Vehicle initiatives?

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- 3.3 Facilitate Regional Technology Summits and Workshops – CTRMA will coordinate regional events (summit and/or workshops) to serve as a conduit for assuring regional coordination of mobility technology and innovation activities among city/county/regional transportation agencies, organizations and other key stakeholders.
- 3.4 Pooled-Fund Research among tolling industry (IBTTA) – what are the options for pursuing a pooled-fund research with other tolling agencies. This paper will recommend an approach for IBTTA Foundation or other organization to structure out a pooled fund research program.

**Section 3: Detailed Research Summaries (In development)**