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March 25, 2016

Mr. Horatio Porter  
Chief Financial Officer  
North Texas Tollway Authority  
5900 West Plano Parkway, Suite 100  
Plano, TX 75093

**Re: North Texas Tollway Authority (NTTA) System Bringdown Letter**

Dear Mr. Porter:

Pursuant to your recent request, CDM Smith is pleased to provide you with a traffic and revenue (T&R) bringdown letter for the North Texas Tollway Authority System (NTTA System). It is our understanding that this letter is intended to support the issuance of the upcoming Series 2016A refunding bonds (referred to as the "Series 2016A") scheduled for closing in May 2016. Currently, the NTTA System consists of the Dallas North Tollway (DNT), the President George Bush Turnpike (PGBT), the President George Bush Turnpike Eastern Extension (PGBT EE), the Sam Rayburn Tollway (SRT), the Addison Airport Toll Tunnel (AATT), the Mountain Creek Lake Bridge (MCLB) and the Lewisville Lake Toll Bridge (LLTB).

**Background**

CDM Smith completed the NTTA System Comprehensive Traffic and Toll Revenue Study report in March 2014 (the "March 2014 Study"). The North Central Texas Council of Governments (NCTCOG) adopted a Metropolitan Transportation Plan (MTP) in June 2013 called the Mobility 2035 – 2013 Update. The updated MTP travel demand model networks were incorporated into the March 2014 Study. It also included an assessment of then-current economic conditions and other key factors influencing traffic and revenue (T&R) on NTTA System facilities. The effort included an independent economic review of the Mobility 2035 – 2013 Update demographics along NTTA System corridors as well as comprehensive traffic count and travel time data collection. Subsequent letter updates to the March 2014 Study were then completed in October 2014 (the "October 2014 Update"), March 2015 (the "March 2015 Bringdown Letter") and July 2015 (the "July 2015 Update"). The Mobility 2035 – 2014 Amendment travel demand model networks were incorporated into the July 2015 Update. These letter updates modified the T&R forecasts to account for changes in transactions trends, revenue recovery assumptions, and the planned completion dates of several capital improvement projects.

**Underlying Demographic Forecasts and Long-Term Transportation Plan**

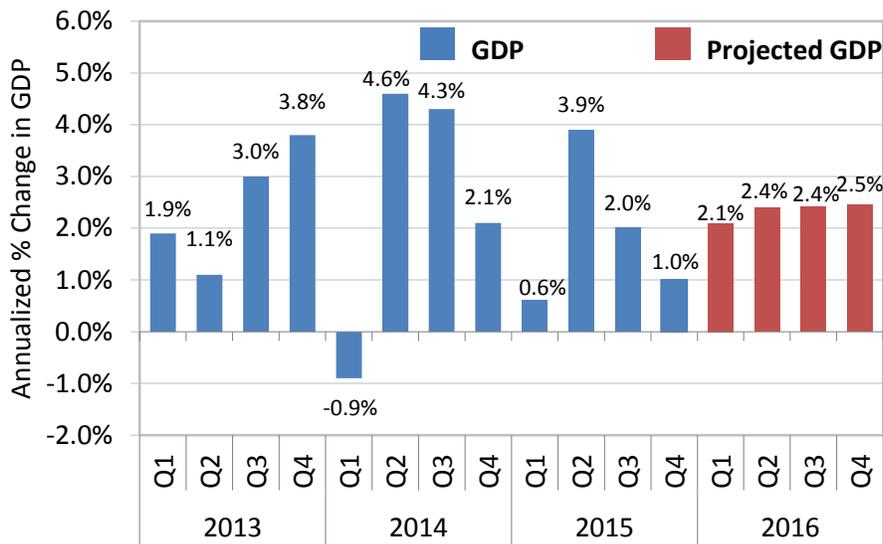
The underlying demographic forecasts for this bringdown letter remain the same as presented in the March 2014 Study, October 2014 Update, March 2015 Bringdown Letter and July 2015 Update. All



four previous studies incorporated results of an independent economic review completed in 2013 by Research and Demographic Solutions (RDS) of NCTCOG’s latest official demographic forecasts. Draft recommendations to the North Central Texas Council of Governments (NCTCOG) long-term transportation plan (Mobility 2040) were adopted by the Regional Transportation Council (RTC) on March 10, 2016. CDM Smith completed a general review of the draft transportation improvements incorporated into the Mobility 2040. However, none of the changes to the planned improvements are expected to negatively impact T&R on the NTTA System. CDM Smith will incorporate all the modifications reflected into the Mobility 2040 as part of the NTTA System Comprehensive Traffic and Revenue Study, which is to be completed later this year.

### Underlying Economic Climate

As can be seen in **Figure 1**, except for the first quarter of 2014, the national real gross domestic product (GDP) has seen positive growth since 2013. The GDP growth in 2015, though positive, was uneven. The second and third quarters of 2015 had higher GDP growth than the first and last quarter. CDM Smith tracks the monthly Economic Forecasting Surveys published by The Wall Street Journal. Also illustrated in **Figure 1** are the GDP growth forecasts for the four quarters of 2016. It is forecasted that the national GDP will continue to show positive growth throughout 2016.

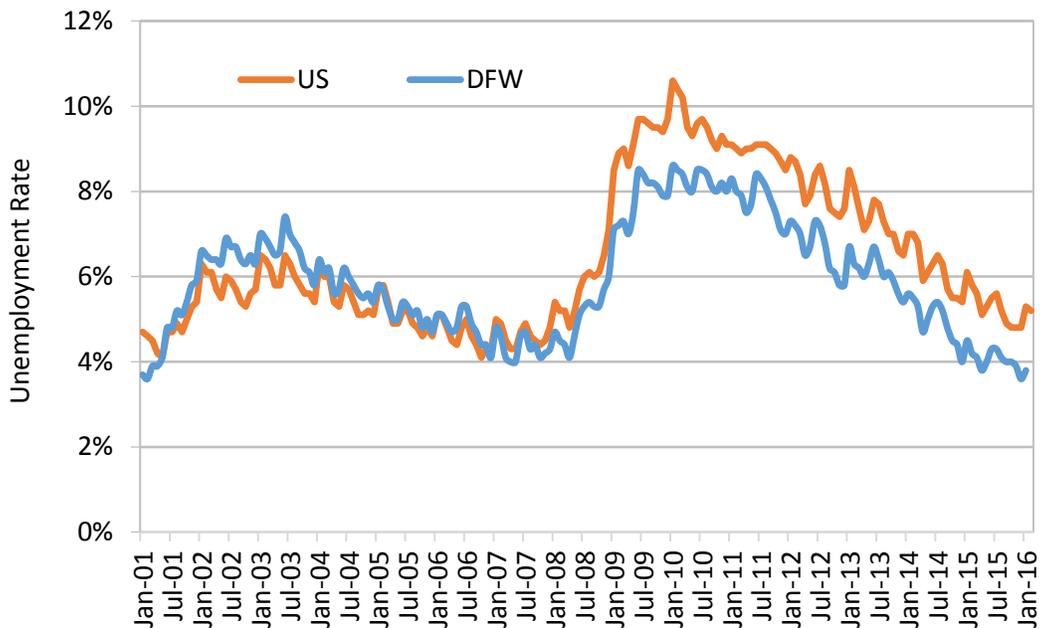


**Figure 1: Historical and Forecasted GDP Growth**

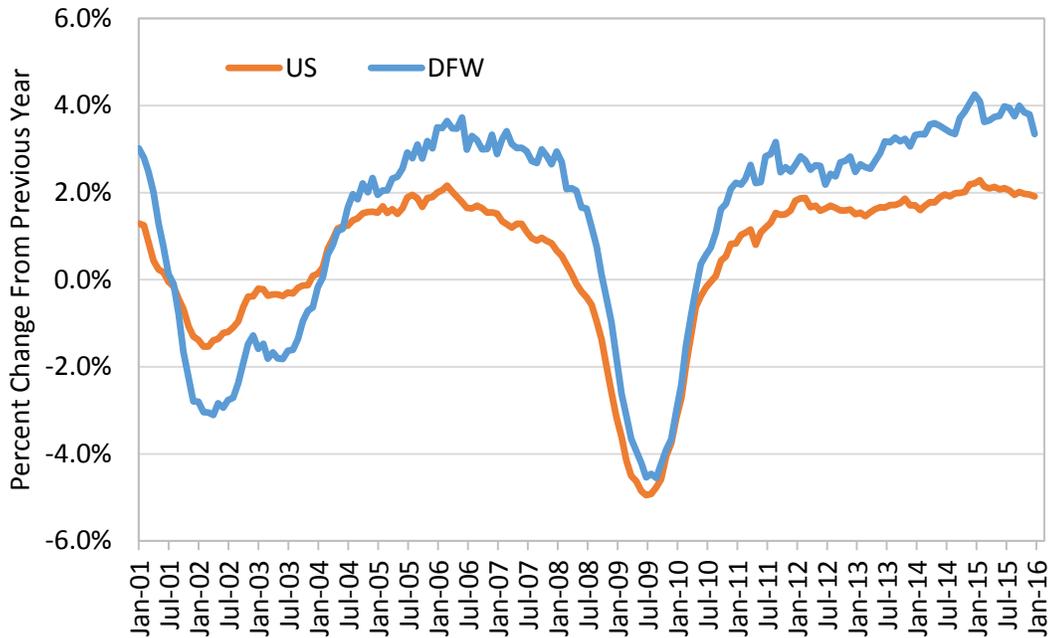
Source: Wall Street Journal Economic Forecasting Survey, US Bureau of Economic Analysis (March 2016)

Texas continues to experience a relatively smaller impact from the recent recession and seems to be on a faster track for recovery than many other parts of the country. Economists have referred to this as the “last in, first out” effect. **Figures 2 and 3** illustrate that the DFW area has been performing better than the rest of the nation in terms of unemployment rates and employment growth. Unemployment in DFW has been below six percent since October 2013, and the North Texas area has seen consistently strong employment growth since July 2010.

Recently, Toyota announced that it is establishing a new headquarters in Plano (near the DNT/SRT interchange) for its North American operations, which is currently under construction. In the next two years, around 4,000 Toyota employees are expected to work at this headquarters. FedEx Office headquarters, Liberty Mutual Insurance campus, and JP Morgan Chase regional headquarters are planned close to the Toyota headquarters as well, and some of these are also currently under construction. Additionally, investments totaling over 5.4 billion dollars have been announced or are already under construction in the one-square-mile corridor on DNT between Warren Parkway and Lebanon Road in Frisco. On the PGBT, State Farm Insurance has completed a two million-square-foot, four-building regional office campus at Plano Road in Richardson, equating to about 8,000 workers.



**Figure 2: Unemployment Rate Comparisons**  
 Source: Texas Workforce Commission (March 2016)

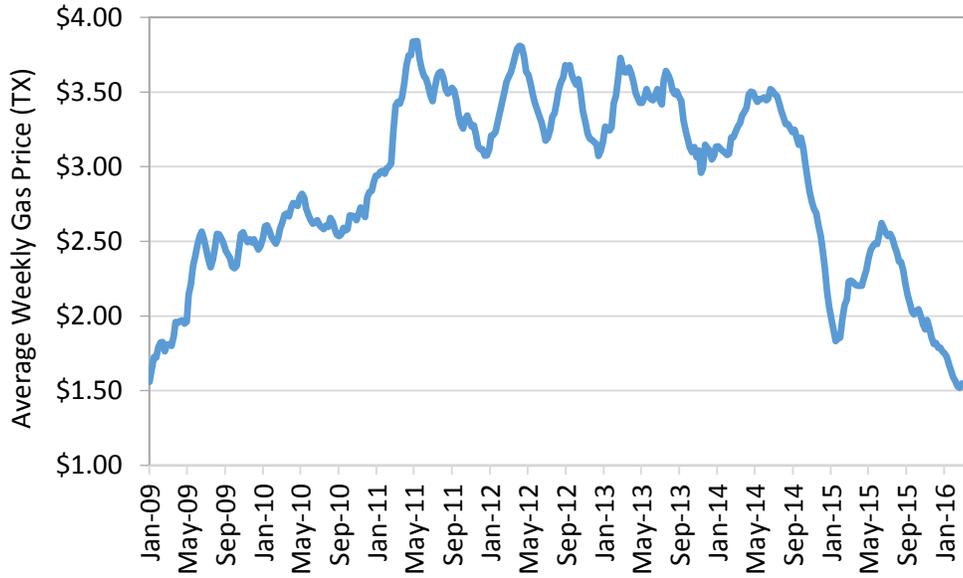


**Figure 3: Employment Growth Comparisons**

Source: Texas Workforce Commission (March 2016)

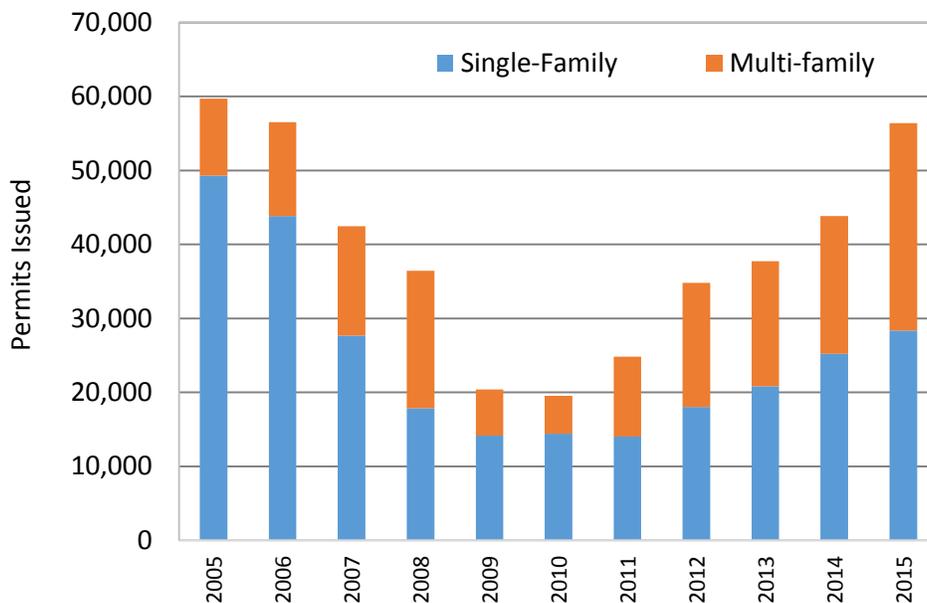
**Figure 4** shows average weekly gasoline price in Texas since January 2009. The average weekly gasoline price in Texas was almost \$1.50 per gallon in January 2009, and it then steadily increased to an average around \$3.50 between January 2011 and May 2014. Gasoline prices fell sharply to less than \$2.00 per gallon in January 2015, increased steadily between January 2015 and June 2015 to more than \$2.50 per gallon and then dropped steadily to about \$1.50 per gallon by January 2016. Current gasoline prices are close to the prices in January 2009.

**Figure 5** shows the total number of residential building permits issued annually in the DFW area since 2005. After being severely impacted by the recession in 2007-2008, new residential construction has seen significant growth since 2010. **Figure 5** includes the building permits by single-family and multi-family units. The multi-family units have had a greater proportional increase compared to prior to the recession.



**Figure 4: Weekly Gasoline Prices since 2009**

Source: US Energy Information Administration (March 2016)



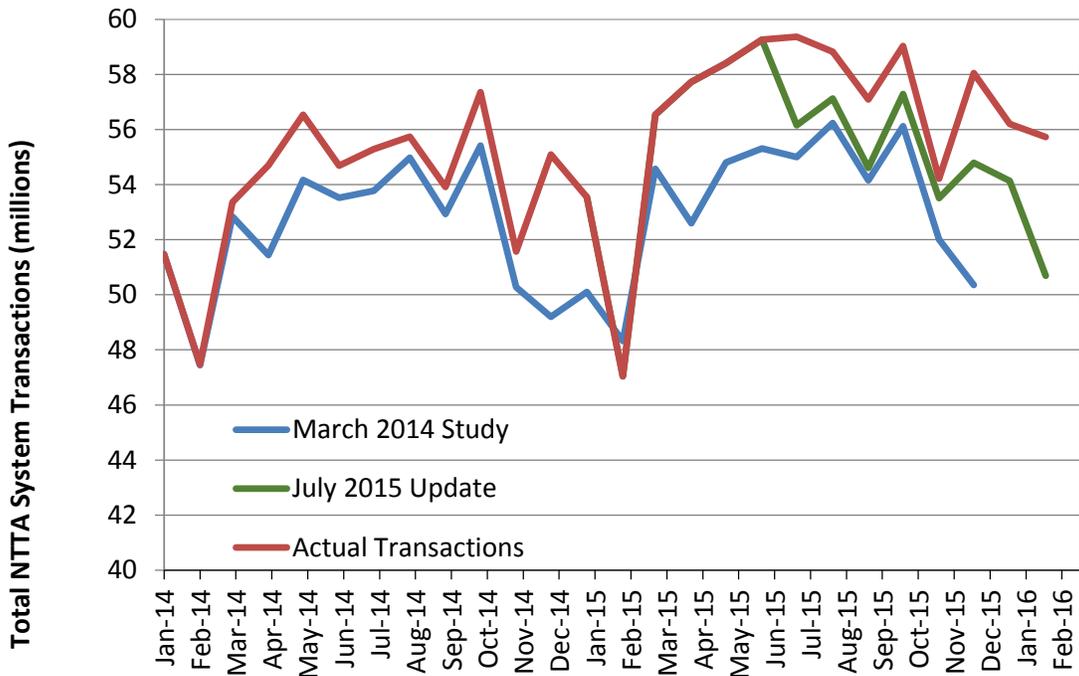
**Figure 5: DFW Area Residential Building Permits per Year**

Source: Real Estate Center at Texas A&M University (Accessed in March 2016)

### Year-to-Date Estimated versus Actual Transactions

**Figure 6** shows the estimated monthly transactions for the NTTA System as included in the March 2014 Study and July 2015 Update, as well as the actual transactions through February 2016. As shown in the figure, actual transactions on the NTTA System exceeded both the July 2015 Update and the March 2014 forecasts.

**Table 1** shows the estimated and actual transactions for the NTTA System as well as for DNT, PGBT, SRT, and PGBT EE for 2015 and the first two months of 2016. The actual total transactions on each facility and the NTTA System are higher than the July 2015 Update forecast. In 2015, actual transactions were higher by 2.2 percent on DNT, 0.3 percent on PGBT, 2.4 percent on SRT, and 3.9 percent on PGBT EE. Including transactions on AATT, MCLB, and LLTB, actual transactions on the NTTA System in 2015 were higher by 1.7 percent.



**Figure 6: Actual vs. Estimated NTTA System Transactions**

**Table 1: Actual vs. Estimated transactions (in millions) by facility and NTTA System Transactions**

Period	Facility	Actual	July 2015 Forecast	Diff	% Diff.
2015	DNT	256.41	250.11	6.30	2.5%
	PGBT	238.16	236.74	1.41	0.6%
	SRT	141.79	138.07	3.72	2.7%
	PGBT EE	33.13	31.78	1.35	4.3%
	<b>NTTA System</b>	<b>679.12</b>	<b>666.01</b>	<b>13.11</b>	<b>2.0%</b>
2016 (Through February)	DNT	42.40	39.57	2.83	7.2%
	PGBT	38.71	37.10	1.62	4.4%
	SRT	23.49	21.66	1.84	8.5%
	PGBT EE	5.69	5.03	0.67	13.3%
	<b>NTTA System</b>	<b>111.92</b>	<b>104.83</b>	<b>7.09</b>	<b>6.8%</b>

Source: NTTA (Unaudited Numbers)

**Table 2** compares NTTA System revenue estimates from the July 2015 Update with the actual NTTA System revenues. The actual NTTA System revenues are calculated using Generally Accepted Accounting Principles (GAAP) based accounting. The actual NTTA System revenues using the GAAP based approach were higher than the July 2015 Update by 2.4 percent.

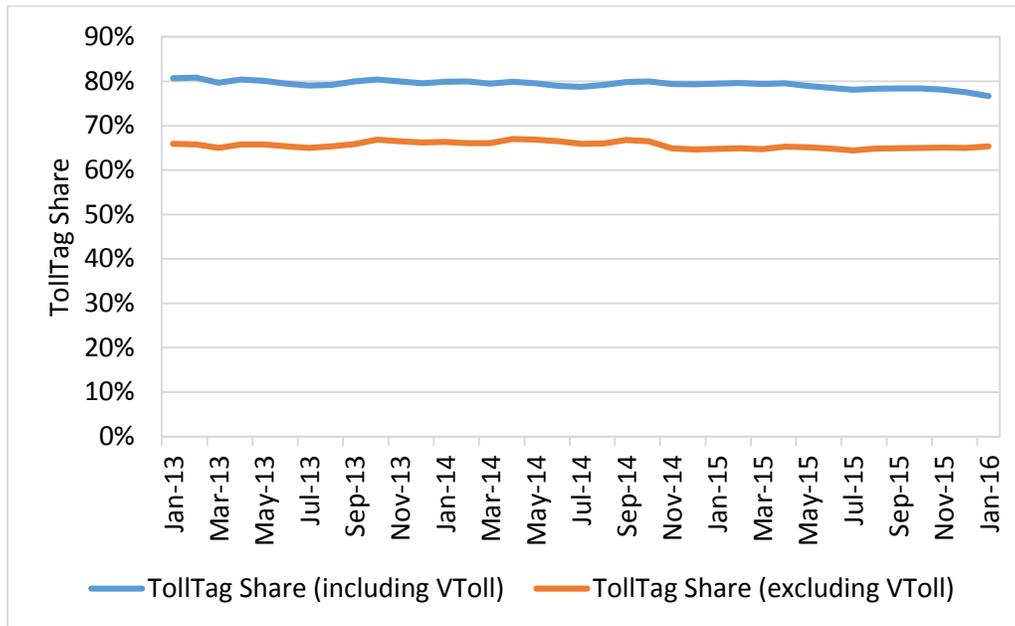
**Table 2: NTTA System Actual vs. Estimated Revenues (in millions)**

Period	Facility	Actual*	July 2015 Forecast	Diff	% Diff.
2015	AVI Revenue	\$534.10	\$520.04	\$14.06	2.7%
	ZipCash Revenue	\$83.31	\$83.07	\$0.23	0.3%
	<b>Total Revenue</b>	<b>\$617.40</b>	<b>\$603.11</b>	<b>\$14.29</b>	<b>2.4%</b>

Note: \*NTTA Monthly Financial Report for the month ended December 31, 2015 (Unaudited Numbers)

## Key Assumptions

The AVI transaction shares also include all transactions initially recorded as ZipCash transactions that may be later identified and reclassified as AVI transactions. These transactions are called "VToll" transactions. **Figure 7** shows average monthly TollTag (including VToll) share and monthly TollTag (excluding VToll) share trends from January 2013 to January 2016. The average daily TollTag share across all NTTA facilities dropped from 81 percent in early 2013 to approximately 78 percent (based on preliminary TollTag share information). The July 2015 Update assumptions accounted for this trend in TollTag share. The 2015 NTTA System TollTag share was assumed to be 79 percent, and actual TollTag usage in 2015 closely matched this assumption.



**Figure 7: NTTA System TollTag Share Trends**

**Table 3** shows the average truck shares for all the NTTA facilities and the total NTTA System from the 2015 actual transaction data and from the T&R assumptions used in the July 2015 Update. The truck share for the NTTA System was assumed to be 2.2 percent in the July 2015 Update while the actual data indicates a truck share of 2.5 percent. A higher truck share is likely to have a positive impact on future gross toll revenues.

**Table 3: 2015 Truck Share from Transaction Data versus July 2015 Update Assumption**

Facility	2015 Actual	Assumption	Difference
DNT	1.5%	1.1%	0.4%
PGBT	2.8%	2.7%	0.1%
SRT	3.6%	3.5%	0.1%
PGBTEE	2.9%	2.7%	0.2%
AATT	0.9%	0.9%	0.0%
MCLB	1.7%	1.5%	0.2%
LLTB	2.9%	2.8%	0.1%
<b>NTTA System</b>	<b>2.5%</b>	<b>2.2%</b>	<b>0.3%</b>

**Table 4** shows the truck toll factors for all the NTTA facilities and the total NTTA System from the 2015 actual transaction data and from the T&R assumptions used in the July 2015 Update. Tolls for vehicles with more than two axles are calculated based on “N-1” weighting, where “N” is the number of axles. For example, the toll paid by a five-axle vehicle would be four times the toll paid by a two-axle vehicle. Average truck toll factor is a ratio of the weighted average of the truck tolls charged to vehicles with greater than two-axles to the tolls charged to two-axle vehicles. The truck toll factor for the NTTA System was assumed to be 3.10 in the July 2015 Update while the actual data indicated a truck factor of 3.17. A higher truck toll factor is likely to have a positive impact on future gross toll revenues.

**Table 4: 2015 Truck Toll Factor from Transaction Data versus July 2015 Update Assumption**

Facility	2015 Actual	Assumption	Difference
DNT	3.03	2.99	0.04
PGBT	3.21	3.15	0.06
SRT	3.26	3.24	0.02
PGBT EE	3.13	3.09	0.04
AATT	2.75	2.73	0.02
MCLB	3.38	3.19	0.19
LLTB	2.90	2.92	-0.02
<b>NTTA System</b>	<b>3.17</b>	<b>3.10</b>	<b>0.07</b>

**Table 5** shows revenue days (the number of days each year that the full level of the average weekday traffic is applied to calculate the toll revenue) for all the NTTA facilities and the total NTTA System from the 2015 actual transaction data and from the T&R assumptions used in the July 2015 Update. The revenue days for the NTTA System were assumed to be 331 in the July 2015 Update, while actual revenue days were 333 in 2015. While some of the facilities such as PGBT EE, MCLB, and LLTB have a slightly lower number of revenue days than was assumed, the overall share of revenues for these facilities is lower than the facilities such as DNT, PGBT, and SRT that have higher number of revenue days than the assumption. As a result, the NTTA System had a higher number of total revenue days in 2015 than was assumed in the July 2015 Update. More revenue days lead to a positive impact on future gross toll revenues.



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**Table 5: Revenue Days from Transaction Data versus July 2015 Update Assumption**

Facility	2015 Actual	Assumption	Difference
DNT	333	330	3
PGBT	329	328	1
SRT	339	335	4
PGBT EE	337	340	-3
AATT	303	304	-1
MCLB	339	344	-5
LLTB	338	343	-5
<b>NTTA System</b>	<b>333</b>	<b>331</b>	<b>2</b>

CDM Smith checked TollTag shares, ZipCash recovery, and other assumptions used in the July 2015 Update. While the difference in assumptions and actuals from the data do not follow a consistent trend, the data indicates that the actual trends will not negatively impact short-term T&R projections.

### **Long-Term NTTA System Traffic and Revenue Estimates**

Based upon the review of all pertinent assumptions supporting the July 2015 Update, it is CDM Smith’s opinion that the resulting NTTA System T&R estimates are suitable for financing purposes. We have assessed the potential impacts of the various changes and information mentioned above and have concluded that the net effect of these changes would not cause any material negative impacts to the NTTA System T&R estimates included in the July 2015 Update.

Therefore, NTTA System T&R forecasts included in the July 2015 Update are appropriate for use in the support of the issuance of the upcoming NTTA System revenue refunding bonds. **Table 6** shows the T&R estimates from 2016 through 2063, which were developed as part of the July 2015 Update.



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**Table 6. NTTA System Annual Toll Transactions and Revenue from July 2015 Update**

(See end notes on Page 12<sup>1</sup>)

Year	Toll Transactions	Toll Revenue	Year	Toll Transactions	Toll Revenue
2016	672,098,200	\$638,622,500	2041	991,620,000	\$1,914,596,400
2017	677,060,600	\$664,693,400	2042	1,001,913,200	\$1,989,406,700
2018	687,462,000	\$694,292,000	2043	1,012,439,200	\$2,065,631,600
2019	698,732,500	\$724,398,600	2044	1,023,141,700	\$2,148,457,000
2020	718,406,000	\$765,067,300	2045	1,033,681,900	\$2,228,789,300
2021	729,783,400	\$799,159,700	2046	1,043,463,700	\$2,314,388,500
2022	742,081,200	\$837,507,000	2047	1,053,273,700	\$2,400,090,500
2023	755,107,500	\$875,823,000	2048	1,063,167,400	\$2,492,536,700
2024	767,552,000	\$916,465,000	2049	1,073,500,400	\$2,584,503,200
2025	780,462,200	\$957,927,800	2050	1,083,893,800	\$2,684,411,800
2026	793,665,900	\$1,003,391,000	2051	1,093,097,400	\$2,779,586,600
2027	807,127,600	\$1,047,933,300	2052	1,102,028,600	\$2,881,823,000
2028	822,537,400	\$1,099,276,800	2053	1,111,371,400	\$2,985,062,800
2029	834,707,800	\$1,146,746,100	2054	1,120,843,700	\$3,097,053,500
2030	847,076,100	\$1,198,696,900	2055	1,130,433,700	\$3,207,136,800
2031	859,698,700	\$1,250,905,300	2056	1,140,201,100	\$3,326,435,500
2032	872,603,300	\$1,307,802,600	2057	1,149,827,300	\$3,444,344,200
2033	885,942,800	\$1,364,648,600	2058	1,059,579,400	\$3,215,350,000
2034	899,345,300	\$1,426,246,700	2059	867,754,900	\$2,589,529,500
2035	910,738,800	\$1,484,566,900	2060	873,831,400	\$2,682,310,800
2036	924,163,600	\$1,552,167,900	2061	879,753,600	\$2,771,775,800
2037	938,167,400	\$1,618,964,300	2062	885,565,700	\$2,868,609,400
2038	952,370,800	\$1,691,627,500	2063	891,309,100	\$2,964,178,800
2039	966,887,100	\$1,765,526,100			
2040	981,472,500	\$1,845,027,700	<b>Total</b>	<b>44,210,943,000</b>	<b>\$90,313,492,400</b>

### Conclusions

CDM Smith reviewed the trends in economic data, actual transactions on all NTTA System facilities compared to previous forecasts, and the assumptions used to complete the July 2015 Update. CDM Smith has also reviewed the draft transportation improvements to the North Central Texas Council of Governments (NCTCOG) long-term transportation plan, Mobility 2040. CDM Smith believes that changes to the transportation plan, trends in economic data, recent transactions trends, and minor changes to the underlying assumptions would not result in lower T&R forecasts than those developed as part of the July 2015 Update. Therefore, T&R forecasts from the July 2015 Update are appropriate for supporting the upcoming Series 2016A refunding bonds.



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We hope this summary meets your needs. Please do not hesitate to call if you have any questions or if any additional information is required.

Sincerely,

A handwritten signature in black ink, appearing to read "Kamran Khan", written over a horizontal line.

Kamran Khan  
Senior Vice President  
CDM Smith Inc.

<sup>i</sup> Key assumptions:

- 1) Background transportation networks based on the NCTCOG Mobility 2035 -2014 Amendment.
- 2) Background demographics based on Mobility 2035 – 2013 Update demographics revised by RDS in 2013.
- 3) System-wide toll rate increases on July 1 of every odd year starting July 1, 2015 by applying an annual toll increase of 2.75 percent.
- 4) Improvements on DNT between Trinity Mills Road and PGBT (northbound) and between Frankford Road and south of Keller Springs Road (southbound) by Oct. 31, 2017. Improvements on DNT between SRT and PGBT by April 1, 2018.
- 5) Expansion of SRT between Denton Creek and DNT from six to eight lanes by Jan. 1, 2020. Expansion of SRT between DNT and US 75 from six to eight lanes by Jan. 1, 2022.
- 6) Expansion of PGBT between DNT and US 75 from six to eight lanes by Nov. 1, 2016. Expansion of PGBT from IH 35E to DNT and US 75 to SH 78 from six to eight lanes by April 1, 2019.
- 7) Expansion of SH 161 between Belt Line Road and SH 183 to eight lanes by Jan. 1, 2019.
- 8) DNT Extension Phase 4A is assumed to open to traffic by Jan. 1, 2023.
- 9) PGBT East Branch is assumed to open by Jan. 1, 2028.
- 10) 2058 is the 50<sup>th</sup> year of operation of SRT as part of the NTTA System. SRT is expected to be returned to TxDOT at the end of August 2058.
- 11) TollTag share and ZipCash revenue recovery trends to not significantly deviate from the assumptions included in July 2015 Update. NTTA would employ business rules to encourage increases in TollTag shares on its facilities and to increase the ZipCash toll revenue recovery.
- 12) In accordance with the existing practice of the NTTA, all NTTA System facilities will be well-maintained, efficiently operated, and effectively signed to encourage maximum usage.
- 13) Growth in vehicle operating costs (which include fuel, maintenance, and tires) will not significantly deviate from the assumed inflation rate.
- 14) No local, regional, or national emergency will arise which would abnormally restrict the use of motor vehicles.



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## **DISCLAIMER**

CDM Smith used currently accepted professional practices and procedures in the development of these traffic and revenue forecasts. However, as with any forecast, it should be understood that differences between forecasted and actual results may occur, as caused by events and circumstances beyond the control of the forecasters. In formulating the forecasts, CDM Smith reasonably relied upon the accuracy and completeness of information provided (both written and oral) by the North Texas Tollway Authority (NTTA). CDM Smith also relied upon the reasonable assurances of independent parties and is not aware of any material facts that would make such information misleading.

CDM Smith made qualitative judgments related to several key variables in the development and analysis of the traffic and revenue forecasts that must be considered as a whole; therefore, selecting portions of any individual result without consideration of the intent of the whole may create a misleading or incomplete view of the results and the underlying methodologies used to obtain the results. CDM Smith gives no opinion as to the value or merit of partial information extracted from this report.

All forecasts and projections reported herein are based on CDM Smith's experience and judgment and on a review of information obtained from multiple agencies, including NTTA. These forecasts and projections may not be indicative of actual or future values, and are therefore subject to substantial uncertainty. Future developments cannot be predicted with certainty, and may affect the forecasts or projections expressed in this report, such that CDM Smith does not specifically guarantee or warrant any estimate or projection contained within this report.

While CDM Smith believes that the projections or other forward-looking statements contained within the report are based on reasonable assumptions as of the date of this letter, such forward-looking statements involve risks and uncertainties that may cause actual results to differ materially from the results predicted. Therefore, following the date of that study, CDM Smith will take no responsibility or assume any obligation to advise of changes that may affect its assumptions contained within the report, as they pertain to socioeconomic and demographic forecasts, proposed residential or commercial land use development projects and/or potential improvements to the regional transportation network.

CDM Smith is not, and has not been, a municipal advisor as defined in federal law (the Dodd Frank Bill) to NTTA and does not owe a fiduciary duty pursuant to Section 15B of the Exchange Act to NTTA with respect to the information and material contained in this report. CDM Smith is not recommending and has not recommended any action to NTTA. NTTA should discuss the information and material contained in this report with any and all internal and external advisors that it deems appropriate before acting on this information.