SUPPLEMENTAL AGREEMENT NO. 5
TO
AGREEMENT OF DECEMBER 19, 2012
FOR TOLL SYSTEMS OPERATION AND MAINTENANCE AGREEMENT

THIS SUPPLEMENTAL AGREEMENT is made and entered into this _20th_ day of _July_ , 2016, and modifies the TOLL SYSTEM OPERATIONS AND MAINTENANCE AGREEMENT effective December 19, 2012 (the "Agreement"), by and between the Fort Bend Grand Parkway Toll Road Authority (the "Authority"), a Texas Local Government Corporation, and TransCore, LP (the "Contractor"), a limited partnership organized under the laws of the State of Delaware.

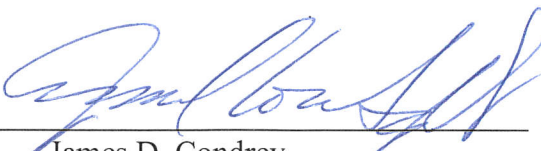The Agreement is hereby modified as follows:

1. In accordance with Section 1.02 of the Agreement, the Authority and Contractor approve the addition of services evidenced by the proposal attached as **Attachment 5** to this Supplemental Agreement.

This Supplemental Agreement does not alter, modify, or otherwise change any part of the Agreement, except as specifically stated in this Supplemental Agreement.

[Remainder of page intentionally left blank.]

IN WITNESS WHEREOF, this Supplemental Agreement is hereby executed as of the date first set forth above.

FORT BEND GRAND PARKWAY TOLL ROAD AUTHORITY, a local government Texas corporation

By:_____
James D. Condrey
Chairman, Board of Directors

ATTEST:

By_____
Assistant Secretary, Board of Directors

TRANSCORE, LP

By:_____
Name: Whitt Hall
Title: Senior Vice President

EFFECTIVE DATE

THIS AGREEMENT IS EFFECTIVE ON THE DATE IT IS APPROVED BY THE FORT BEND COUNTY COMMISSIONERS COURT, AND IF NOT SO APPROVED SHALL BE NULL AND VOID.

DATE OF COMMISSIONERS COURT APPROVAL: _____

AGENDA ITEM NO.: _____

ATTACHMENT 5
SCOPE OF WORK & COMPENSATION FOR
AGGREGATED TOLLING, WESITE TRANSACTION SEARCH,
TESTING, AND HARDWARE UPGRADE

Reason for Change:
The IOP-HUB is changing their transaction processing fees. A minimum transaction fee will be charged that will cause a significant increase in operating costs for FBCTRA. The aggregate tolling feature was discussed during a FBCTRA hosted meeting on Oct 6, 2015 and a ROM was requested by FBCTRA to help with reducing current and potential future transaction fees.

1. **Aggregated Tolling Logic:**

   The following sections outline an approach to support aggregate tolling of transactions on the Fort Bend Grand Parkway, Fort Bend Parkway and Westpark roadways. Final design of this feature will be completed after the design workshops.

   FBCTRA and TransCore will have a design workshop to determine the best way to aggregate tolls on Fort Bend roadways. The goal is to aggregate tolls in a way that will reduce transaction processing costs of ETC (ie tag) transactions and provide tag customers with a way to review both aggregate and individual toll transactions. ITolls would not be part of the aggregation logic at this time.

   TransCore will develop aggregate logic that is flexible to combine multiple toll transactions amounts into a single transaction that will be sent as a single transaction to the IOP-HUB. It will be determined during the future design meetings if this logic will be based on **roadway**(s), **direction** of travel, and/or **time** or a combination of these three variables.
                   Example: Tag# 123 a 2 axle vehicle.
              Traveling Fort Bend Parkway and passing all 4 tolling points.
              o   Fondren ($0.60),
              o   McHard ($0.40),
              o   Lake Olympia ($0.40)
              o   Sienna Parkway ($.40)
       Today this trip would be 4 individual transactions sent to the IOP-HUB for processing, resulting in (4) individual IOP-HUB transaction fees.
       Using the aggregate logic only 1 Transaction for the full (1.80) would be sent to the IOP-HUB for proc

   Naming Conventions for Plaza/Lanes:
   TransCore and FBCTRA will conduct a workshop that will focus on Plaza/Lane naming conventions for aggregate tolling. The IOP-HUB and partners would need to accept the new Plaza/Lane naming conventions for supporting the aggregate transactions. TransCore will update the Host database naming and fare schedules to support the updated Plaza/Lane names.

Website for Transaction Review:
Home agencies will show aggregate transactions on customer statements and online history. For a customer to see the individual reads that make up the aggregate transaction the customer will use a FBCTRA website. TransCore will work with FBCTRA to build a website interface for customers. A customer will utilize a secured login and will be able to see the detailed read points and tolling amounts that make up each aggregate transaction. The website will provide the ability to review/print transaction information. There will not be any kind of payment or billing data on the website only toll transaction data related to a specific tag number.

Additional hardware will be required for secured Website, Firewall, Internet Communications.

Testing:
TransCore will work with FBCTRA to support up to 5 weeks of interface testing with the IOP-HUB and partners.

2. **Server and SAN:**
   TransCore will procure, install, and configure (2) new Dell R730xd in . A server will be installed at the Primary and DR site to help support these new features.

   A SAN will be added to both the Primary and DR site to support the addition storage needs for aggregate tolls. SAN will have 142TB of raw storage. This storage will also help with additional volumes of transactions/violations (images) which is beyond what was provided in the initial sizing the original Fort Bend Grand Parkway roadway system.

   Firewall / Routing Switches:
   (2) Cisco ASA 5515-X Services, SmartNet ASA 5515, and Anyconnect VPN Licenses.
   (2) Cisco Catalyst 3850-48T-S Switch 48Ports (2X 10GE Network Module)

3. **Recurring Communications Website:** Communications for hosting the Website to be used by customers for accessing transaction details.

4. **Recurring Communications Primary to DR Site:**
   Communications between the Primary and DR Sites needs to be upgraded handle the data/volumes between the two sites. A Comcast 50MB/s connection between 2801 Computer Room and 4903 Computer Room is required. TransCore has used a 3 year recurring costs estimate for this price.

The following table outlines the Pricing information:
Note: Items 1 and 2 are Implementation Pricing and Items 3 and 4 are recurring communications pricing.

FBCTRA already has existing agreements with Comcast for communications throughout your roadway. If FBCTRA would prefer to procure the communications directly from Comcast, TransCore would support that decision. It could also probably save FBCTRA some money on recurring communication costs on items 3 and 4 below.

ITEM	DESCRIPTION	ROM -PRICE
1	Design, Develop, Test and Implement – Aggregate Tolling	$ 428,744.70
2	Servers, SANs, Switches, and Internet Equipment	$ 327,691.13
	Implementation Total	**$ 756,435.83**
	* Monthly Recurring not included in the $756,435.83	
3	*** Monthly Recurring:** Website for Customers to access txns. INTERNET Circuit 50 Mbps - HOU Datacenter (36 Months)	$ 40,924.80/36mths **= $1136.80 per mth**
4	*** Monthly Recurring:** Comms for Peer to Peer DataCenter Replication (36Months)	$ 61,387.20/36mths **= $1705.20 per mth**