CENTRAL TEXAS REGIONAL
MOBILITY AUTHORITY

December 16, 2020
AGENDA ITEM #8

Authorize the Executive Director to contract with Data Transfer Solutions, LLC to perform data collection on the 183 South corridor to add the infrastructure into the Mobility Authority's Geographic Information System in order to utilize the asset management work order tracking system

Strategic Plan Relevance:	Regional Mobility
Department:	Engineering
Contact:	Mike Sexton, P.E., Acting Director of Engineering
Associated Costs:	$50,850
Funding Source:	Project Funds
Action Requested:	Consider and act on draft resolution

Background – The Mobility Authority assumes maintenance on projects when the facility opens to tolling. The system-wide Performance Based Maintenance Contract (PBMC) is integrated with VUEWorks, the Mobility Authority's web-enabled Integrated GIS, Enterprise Asset Management software.

With the opening of the 183 South Project, we need to collect data to add this corridor into the GIS inventory. The PBMC Contractor will then be able to utilize the asset management work order tracking system in VUEWorks.

The Houston-Galveston Area Council Cooperative Purchasing Program, known as HGACBuy, was established pursuant to Texas Interlocal Cooperation Act which allows local governments and certain non-profits to contract or agree under the terms of the Act to make purchases or provide purchasing services and other administrative functions appropriately established by another government entity. This contract with DTS will be through HGACBuy.

Previous Actions – Assets for the interim portion of the 183 South Project tolled lanes

from US 290 to FM 969 were collected in FY20 under task order No. 1.

Action requested/Staff Recommendation – Staff recommends the Board approve the contract with Data Transfer Solutions, LLC (DTS) to perform asset data collection services for the remainder of the 183 South Project (task order No. 2) for an amount of $37,650 with a contingency amount of $13,200 for a total not to exceed amount of $50,850. Staff also recommends the Board authorize the Executive Director to issue any needed change orders as long as the total expenditures stay within the not to exceed limit.

We expect the data collection to start in December and complete in January.

provided: Draft Resolution
Draft Task Order

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

RESOLUTION NO. 20-0XX

AUTHORIZING THE EXECUTIVE DIRECTOR TO CONTRACT WITH DATA TRANSFER SOLUTIONS, LLC FOR DATA COLLECTION SERVICES ON THE 183 SOUTH CORRIDOR

WHEREAS, the Mobility Authority has established a Transportation Asset Management Program to collect and record asset and pavement condition data on Mobility Authority facilities to be utilized in evaluating routine maintenance and restoration and replacement needs;

WHEREAS, it is necessary to collect asset and pavement condition data for the newly constructed portions of the 183 South corridor which will become fully operational in the near future; and

WHEREAS, the asset and pavement condition data is maintained in VUEWorks, a web-enabled Integrated Graphic Information System, Enterprise Asset Management software program; and

WHEREAS, Data Transfer Solutions, LLC, the company that manages and updates VUEWorks, participates in the Houston-Galveston Area Council Cooperative Purchasing Program (HGACbuy); and

WHEREAS, in accordance of with Article 15 of the Mobility Authority Policy Code, purchases made through a cooperative program such as HGACbuy are deemed to have satisfied Mobility Authority procurement requirements; and

WHEREAS, the Executive Director requests authorization to contract with Data Transfer Solutions, LLC through HGACbuy in the amount of $37,650 and with a contingency amount of $13,200 for a total amount not to exceed $50,850, for the collection of asset and pavement condition data on the 183 South corridor; and

WHEREAS, the Executive Director also requests the authority to issue any needed change orders so long as the total expenditure remains $50,850 or less.

NOW THEREFORE BE IT RESOLVED that the Board of Directors hereby authorizes the Executive Director to contract with Data Transfer Solutions, LLC through HGACbuy in an amount not to exceed $50,850 to collect asset and pavement condition data for the 183 South corridor; and

BE IT FURTHER RESOLVED that the Board hereby authorizes the Executive Director to issue any needed change orders so long as the total expenditure remains $50,850 or less

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 16th day of December 2020.

Submitted and reviewed by:

_____
Geoffrey Petrov, General Counsel

Approved:

_____
Robert W. Jenkins, Jr.
Chairman, Board of Directors

SNC·LAVALIN

dts MAKERS OF VUEWorks.
Member of the SNC-Lavalin Group

Data Transfer Solutions, LLC
3680 Avalon Park Blvd E, Suite 200
Orlando, FL 32828
Tel: +1 407-382-5222
Fax: +1 407-382-5420

dtsgis.com
snclavalin.com

Central Texas Regional Mobility Authority
300 N. IH 35, Suite 300
Austin, TX 78705

Attn: Lisa Pohlmeyer
Senior Project Manager – Asset Management
Central Texas Regional Mobility Authority

December 4, 2020

Subject: Central Texas Regional Mobility Authority
HGACBuy Contract (No. HP10-17) for Asset Data Collection Services

Dear Ms. Pohlmeyer:

This is an Agreement between DATA TRANSFER SOLUTIONS, LLC, a Florida corporation, having offices at 3680 Avalon Park Blvd, Suite 200, Orlando, FL 32828 (DTS), and the CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY, having offices at 3300 North IH35, Suite 300, Austin, TX 78705 (CTRMA) for 2020 Asset Data Collection Services. DTS shall provide to Client the requested services as described herein the following documents, attached for your information:

Task Order 2: 183S Project
Attachment A HGACBuy Contract Pricing Worksheet (No. HP10-17)
Attachment B Contract Scope of Work

The Mobility Authority will execute separate purchase orders through the HGACBuy Cooperative Program consistent with the Pricing Worksheet in Attachment A for each referenced Exhibit for the applicable scope of work.

Compensation to be paid based on percentage complete on each task to DTS for providing the requested services shall be in accordance with the Attachments.

DTS requests your signature to execute this Agreement on page 3 of 3 of this document.

Data Transfer Solutions, LLC
3680 Avalon Park Blvd E, Suite 200
Orlando, FL 32828
Tel: +1 407-382-5222
Fax: +1 407-382-5420

dtsgis.com
snclavalin.com

If you have any questions or need additional information, please contact Allen Ibaugh at (407)382-5222 or email at aibaugh@dtsgis.com.

Sincerely,

Allen Ibaugh, AICP, GISP
Business Unit Director

Data Transfer Solutions, LLC
3680 Avalon Park Blvd E, Suite 200
Orlando, FL 32828
Tel: +1 407-382-5222
Fax: +1 407-382-5420

dtsgis.com
snclavalin.com

HGACBuy Contract (No. HP10-17)
Central Texas Regional Mobility Authority
Member Number 18-6487
Asset Data Collection Services

Data Transfer Solutions, LLC

By: _____ December 4, 2020
Name: Allen Ibaugh, AICP, GISP Date
Title: Business Unit Director

Central Texas Regional Mobility Authority

By: _____ _____
Name: Mike Heiligenstein Date
Title: Executive Director

Task Order No. 2

183 South Project Data Collection

Data Transfer Solutions, LLC (DTS)

HGACBuy Contract (No. HP10-17)

HGACBuy	CONTRACT PRICING WORKSHEET For Catalog & Price Sheet Type Purchases	Contract No.:	HP10-17	Date Prepared:	11/30/2020

This Worksheet is prepared by Contractor and given to End User. If a PO is issued, both documents MUST be faxed to H-GAC @ 713-993-4548. Therefore please type or print legibly.

Buying Agency:	Central Texas Regional Mobility Authority	**Contractor:**	Data Transfer Solutions, LLC
Contact Person:	Lisa Pohlmeyer	**Prepared By:**	Kathy Anamisis
Phone:	(512) 996-9778	**Phone:**	407-587-4019
Fax:	(512) 996-9784	**Fax:**	
Email:	lpohlmeyer@ctrma.org	**Email:**	kanamisis@dtsgis.com

Catalog / Price Sheet Name:	
General Description of Product:	

A. Catalog / Price Sheet Items being purchased - Itemize Below - Attach Additional Sheet If Necessary

Quan	Description	Unit Pr	Total
1	Centerline Identification	1600	1600
1	Field Set-up & GPS Network Creation	5000	5000
1	Project Calibration Site Survey	1500	1500
96	Street Centerline Network Driven in Both Directions (Units = Lane Miles)	60	5760
57	Street Signs Inventory (Units = Lane Miles)	40	2280
96	Pavement Markings Inventory (Units = Lane Miles)	30	2880
96	Pavement Striping Inventory (Units = Lane Miles)	40	3840
57	Street Lights Inventory (Units = Lane Miles)	30	1710
1	GIS and Metadata Documentation	10200	10200
		Total From Other Sheets, If Any:	
DTS will bill lump sum based on percent complete for each task item.		**Subtotal A:**	34770

B. Unpublished Options.

Quan	Description	Unit Pr	Total
96	Raised Pavement Marking Inventory (Units = Lane Miles)	30	2880
			0
		Total From Other Sheets, If Any:	
DTS will bill lump sum based on percent complete for each task item.		**Subtotal B:**	2880
Check: Total cost of Unpublished Options (B) cannot exceed 25% of the total of the Base Unit Price plus Published Options (A+B).		**For this transaction the percentage is:**	8%

C. Other Allowances, Discounts, Trade-Ins, Freight, Make Ready or Miscellaneous Charges

	Subtotal C:	0
Delivery Date:	**D. Total Purchase Price (A+B+C):**	37650

Asset Data Collection Services
Corridor: 183S Project
Central Texas Regional Mobility Authority
Contract Scope of Work

Prepared by:
Data Transfer Solutions, LLC
3680 Avalon Park East Blvd., Suite 200
Orlando, FL 32828
www.dtsgis.com

dtsams

Central Texas Regional Mobility Authority (CTRMA)
Asset Data Collection Services
Contract Scope of Work

Task 1 - Project Setup

1.1 *Project Initiation*

Upon notice to proceed the CONSULTANT will arrange a kick-off meeting to confirm the project requirements and scheduling. The kick-off meeting will include proposed key personnel and the OWNER's project members. During the meeting, CONSULTANT will present the proposed Project Approach, which includes project equipment, software, methodology, schedules and deliverables. The proposed approach will be finalized based on the OWNER requirements and decisions during the meeting. CONSULTANT will request that the OWNER provide any existing database, roadbeds, centerlines, Linear Referencing System (LRS) for project use, Geographic Information System (GIS) layers as currently configured in VUEWorks® and aerial imagery for project use. Project communication protocol, documentation, accounting methodologies, data format and standards will be confirmed during the meeting. It is essential that the OWNER provide prompt and efficient communication in order that workflow continues as planned in the schedule. Changes to data model may contribute to workflow disruptions and result in a change to the project schedule and cost estimate. Deliverables will be transmitted to CTRMA's Project Manager for review. Asset extraction will be managed by Kathy Anamisis.

1.2 *GIS Centerline/Data Import and Data Preparation*

OWNER will provide a geodatabase and shape file for the assets to be collected. CONSULTANT will use the files provided by the OWNER to collect data. Once data has been validated through the QC process, it will be published in VUEWorks by the OWNER.

The project schedule and cost estimate may be impacted if a timely response is not received from the OWNER and/or changes are made to the centerline after data collection and processing has been initiated.

CONSULTANT will provide the OWNER with a GPS "breadcrumb" file of data collection routes and image locations containing X, Y, and Z in WGS-84 Coordinates.

1.3 *Project Management*

CONSULTANT will provide project management for the duration of the project, including coordinating and attending meetings via web meetings or in person with OWNER, data research and collection efforts as required, preparing weekly progress reports and schedule updates. CONSULTANT's Asset Management Services Project Manager will review project progress on a weekly basis and be involved with any changes to the daily schedule to increase efficiency and accuracy in data collection. Project management will also oversee implementation of the data

and coordination with the OWNER's GIS support.

Task 1 – Deliverables

- Meeting minutes and project schedule.
- Weekly progress reports and schedule updates.

Task 2 - Image Capture

The CONSULTANT will collect data and images for the OWNER's assets using a Mobile Asset Collection (MAC) data collection vehicle.

2.1 *System Setup, Mobilization and Pilot Project*

CONSULTANT will set up the data collection system so that all GIS and database system data are integrated and properly configured.

CONSULTANT will mobilize one or more Mobile Asset Collection (MAC) Laser Road Imaging Systems (LRIS) vehicles to OWNER site.

2.2 *Field Data and Image Capture*

CONSULTANT's Mobile Asset Collection (MAC) vehicles will collect right-of-way asset inventories. The vehicles will capture images at an interval of approximately 10 to 15 feet for both forward and side-facing directions and geo-referenced to the shapefile by segment. The CONSULTANT will collect data by driving our MAC vehicle in the project area. CONSULTANT proposes to use its MAC LRIS vehicle line scan camera with laser illumination and four right-of-way cameras to capture ROW images.

Mobile Asset Collection (MAC) Vehicle

The CONSULTANT Mobile Asset Collection vehicle is equipped with:

- High-resolution right-of-way digital cameras – Allied Vision Prosilica GX1920C GigE, frame rate of 15 images per second and 1936 x 1456 color resolution

- Laser Road Imaging System (LRIS) pavement imaging system – collects high-definition pavement images used to extract distress type severity and extent measurements. 4096 pixel/line, 28,000 lines/sec, 1mm resolution
- ApplanixPOS220V inertial measuring unit (IMU) – centimeter-level positioning of MAC van during collection
- DMI equipment – distance measuring instrument used for system integration
- GPS equipment – used for mapping level positioning of the vehicle, heading information and positional tagging of images. 2 positional units, 1 differential unit
- Servers – on board servers for storing data, processing images and storing profiler, GPS, DMI and IMU data
- Surface (road) profiler – used for precise pavement ride and rut measurement

The MAC system collects all pavement and right-of-way images, IMU, DMI and profiler data concurrently. The CONSULTANT'S MAC LRIS vehicles will collect imagery for roadway assets as noted herein.

Task 2 – Deliverables

- CONSULTANT will provide right-of-way imagery for all segments collected in a JPEG format.
- CONSULTANT will deliver an inventory with attributes identified in a geodatabase.

Task 3 - Pavement Striping (Line Feature) Per CTRMA Geodatabase

Feature class name – StripingYellow & StripingWhite

- POSTED_CORRIDOR_NAME
- CROSS_ST_NAME
- TRAVEL_DIRECTION
- CONNECT_DIRECTION
- LANE_TYPE
- STRIPING_TYPE
- STRIPING_COLOR
- STRIPING_WIDTH
- BEGIN_RM
- END_RM

Task 4 – Raised Pavement Markers Attributes (Point Feature) per CTRMA Geodatabase

Feature class name – RaisedPvmtMarkers

- POSTED_CORRIDOR_NAME
- CROSS_ST_NAME
- TRAVEL_DIRECTION
- CONNECT_DIRECTION
- RM

Task 5 - Pavement Markings & Graphics Attributes (Point Feature) Per CTRMA Geodatabase

Feature class name – Graphics

- POSTED_CORRIDOR_NAME
- CROSS_ST_NAME
- TRAVEL_DIRECTION
- CONNECT_DIRECTION
- LANE_TYPE
- GRAPHIC_TYPE
- GRAPHIC_COLOR
- RM

Task 6 – Traffic Sign and Support Attributes (Point Feature) Per CTRMA Geodatabase

Feature class name - SignPanel

- POSTED_CORRIDOR_NAME
- CROSS_ST_NAME
- TRAVEL_DIRECTION
- CONNECT_DIRECTION
- LANE_TYPE
- PANEL_MUTCD_CAT
- PANEL_MUTCD_CODE
- PANEL_SUPPORT_STRUCT
- PANEL_ORIENTATION
- PANEL_TEXT
- PANEL_PHOTO
- RM

Feature class name - GndSignStructure

- POSTED_CORRIDOR_NAME
- CROSS_ST_NAME
- TRAVEL_DIRECTION
- CONNECT_DIRECTION
- LANE_TYPE
- POST_QTY

- RM

Task 7 - Street Light (illumination structure) Attributes (Point Feature) Per CTRMA Geodatabase

Feature class name - Illum_Post

- POSTED_CORRIDOR_NAME
- CROSS_ST_NAME
- TRAVEL_DIRECTION
- CONNECT_DIRECTION
- LANE_TYPE
- I_POST_TYPE
- RM
- I_POST_PHOTO

Task 8 - Quality Assurance and Quality Control

The CONSULTANT will perform quality assurance and quality control on all data collected.

CONSULTANT has a proven Quality Assurance (QA)/Quality Control (QC) procedure for all MAC image collection projects. CONSULTANT'S QC procedures begin with MAC vehicle collection process. For the OWNER, a MAC calibration site(s) will be established that consists of up to 10 point locations nailed, painted and surveyed in a location easily accessible to the MAC LRIS vehicle. This calibration site will be recorded in at least two perpendicular directions at the beginning and end of each collection day.

The MAC technician will check each camera's exposure rate, image quality and GPS and IMU operation to ensure the MAC system is recording the image, GPS, DMI and IMU data and that the GPS location is within the stated project tolerance. Each collection day's calibration collection will be documented in the MAC collection log book. The MAC collection log book also contains information such as date, location, technician, driver, any issue that developed during the collection day and DMI calibration runs. CONSULTANT will maintain a Microsoft Access database of any collection or other project issues. All project team personnel including OWNER personnel will have access to the database to log comments, check the status of issues and have one central repository to track project issues and resolutions.

During image collection, the MAC technician reviews the images collected on-screen as they are collected and any issue with image clarity requires the collection run to end and the image quality issue to be resolved. Once resolved, the collection run begins from the beginning for the road segment collected. The MAC technician also monitors GPS reception during collection. If GPS reception is lost (measured using PDOP – positional dilution of precision), the MAC technician stops the collection and resolves the GPS reception issue. Collection begins again once the GPS reception issue is resolved. All issues resulting in the collection run being stopped will be recorded in the MAC collection log book along with the resolution.

With a completed collection drive delivered to CONSULTANT headquarters in Orlando, images are post processed and provided to the image QC Officer who will perform quality control checks on each delivery provided. The QC Officer will visually review the collection routes for image quality. All collection runs that are considered of low quality will be marked for recollection before the MAC vehicle(s) is allowed to leave the CTRMA.

Additionally, CONSULTANT will provide independent quality checks via field verification to confirm accuracy of automated data collection. CONSULTANT's QA methodology is outlined in Task 8 at the end of this document.

CONSULTANT will verify use of domains included in CTRMA geodatabase where provided for the extraction attributes.

TASK 8 – Deliverables

- CONSULTANT will perform field verification and resolve discrepancies in data and field observations.

ACCEPTANCE CRITERIA

The results of the data collection shall be quality checked for rating consistency by CONSULTANT to ensure the accuracy and quality of deliverables. Notes from field validations will be implemented to make any corrections. Additionally, deliverables will be checked for missing and/or duplicate assets and anomalies. A 97% accuracy rate is expected and Quality Control checks will be based on the batch/sample size of the delivery (see Table A below to determine sample size for the appropriate accuracy rate).

For any measurement that is needed, it must be accurate to the nearest foot. If the data has more errors than allowable the set of data will be corrected. This process will be repeated until each set of data is within the allowable limits.

Line work will be checked to ensure it was created with the correct direction from decreasing to increasing reference markers established within the LRS.

Method of measurement of acceptable quality level (AQL)

Each attribute captured for an asset counts as one unit of measure. Each physical measurement required for an asset location counts as one attribute or unit of measure. The following location information also counts as an attribute or unit of measure for each asset: Physical presence (when captured as per source = correct, not captured or missed = incorrect) In the event of a duplicate capture of an asset, the total number of attributes or units of measure for the duplicate asset(s) will be deducted from the total units of the sample set, and one error or unit of measure (incorrect physical presence) is charged.

TABLE A

Batch size			Sample Size (Normal)	Acceptance Rate (%)				
				99.0	98.5	97.5	96.0	93.5
2	to	8	2	≤ 0	≤ 0	≤ 0	≤ 0	≤ 0
9	to	15	3	≤ 0	≤ 0	≤ 0	≤ 0	≤ 0
16	to	25	5	≤ 0	≤ 0	≤ 0	≤ 0	≤ 1
26	to	50	8	≤ 0	≤ 0	≤ 0	≤ 1	≤ 1
51	to	90	13	≤ 0	≤ 0	≤ 1	≤ 1	≤ 2
91	to	150	20	≤ 0	≤ 1	≤ 1	≤ 2	≤ 3
151	to	280	32	≤ 1	≤ 1	≤ 2	≤ 3	≤ 5
281	to	500	50	≤ 1	≤ 2	≤ 3	≤ 5	≤ 7
501	to	1,200	80	≤ 2	≤ 3	≤ 5	≤ 7	≤ 10
1,201	to	3,200	125	≤ 3	≤ 5	≤ 7	≤ 10	≤ 14
3,201	to	10,000	200	≤ 5	≤ 7	≤ 10	≤ 14	≤ 21
10,001	to	35,000	315	≤ 7	≤ 10	≤ 14	≤ 21	≤ 21
35,001	to	150,000	500	≤ 10	≤ 14	≤ 21	≤ 21	≤ 21
150,001	to	500,000	800	≤ 14	≤ 21	≤ 21	≤ 21	≤ 21
500,001	and over		1250	≤ 21	≤ 21	≤ 21	≤ 21	≤ 21

Example: a delivery results in 100 assets – each asset has been determined to have 10 attributes to be captured (including the physical presence “attribute” for each asset) – thus total units of measure for the Batch size = 1,000 (100 x 10). Based on Table A, a Quality Control using a sample size of 80 units should be assessed for quality. With an expected accuracy of 97%, the allowable number of errors ≤ 5.

CTRMA

DATA TRANSFER SOLUTIONS
Kathy Kantaras-Anamisis

Project Start: Sun, 1/3/2021

TASK	PROGRESS	START	END
Centerline Identification	0%	1/3/21	1/3/21
Field Set-Up and GPS Network Creation	0%	1/4/21	1/4/21
Project Calibration Site Survery	0%	1/5/21	1/6/21
Data Collection	0%	1/6/21	1/16/21
Assets Extraction	0%	1/17/21	1/31/21
Assets QA/QC	0%	1/31/21	2/14/21
GIS and Metadata Documentation	0%	2/14/21	2/28/21
Final Deliverable	0%	3/1/21	3/1/21