

STATE OF TEXAS §
 §
COUNTY OF BURNET §

SERVICE CONTRACT

This contract is entered into between Burnet County, Texas, hereinafter referred to as COUNTY, and Fugro USA Land, Inc hereinafter referred to as PROVIDER, for the purpose of providing pavement analysis and related services which the Commissioners Court finds serves a public purpose and serves the public welfare of the citizens of Burnet County. Further, this contract is pursuant to an order adopted by the Burnet County Commissioners Court, and no officer or employee has authority to bind the COUNTY absent such action.

**1.
SCOPE OF SERVICES**

PROVIDER shall provide pavement analysis and related services (the “Services”) for Road and Bridge, Burnet County Texas (the “Project”), said services to be defined by COUNTY and mutually agreed to by PROVIDER. The Proposal for pavement analysis services dated July 13, 2026 from PROVIDER, forms the contract between the parties. The Proposal defines the scope of this agreement, and it is hereby incorporated as if verbally stated herein. The Services shall be performed in accordance with generally accepted professional standards applicable to providers performing similar services in Texas and in accordance with all applicable federal, state, and local laws, regulations, and standards.

The Services to be provided by the PROVIDER as outlined more specifically in the proposal shall include, but are not limited to, the following:

- 1.1 Geodatabase Delivery
- 1.2 Data Delivery Files
- 1.3 Image Delivery
- 1.4 iVision5 Access
- 1.5 Final Report

All deliverables are subject to approval by the COUNTY. PROVIDER shall correct deficiencies at no additional costs.

**2.
TERM**

This contract commences once all signatures are acquired and concludes on the earlier of the date services are completed or November 15, 2026.

**3.
COST**

- 3.1 For the services described in PROVIDER’S proposal, the PROVIDER’S compensation for these services shall be ~~thirty-four thousand six hundred and one~~ dollars (\$34,601.00) and shall not exceed this amount without prior authorization from the County.
- 3.2 PROVIDER shall bill for the Services performed in accordance with this contract.
- 3.3 PROVIDER shall send all invoices to Burnet County Auditor’s Office, 133 E. Jackson Burnet, Texas 78611, invoices@burnetcountytexas.org.
- 3.4 PROVIDER’S invoice shall detail the Services provided; (address any additional rates/costs involving reports, materials, etc., and the number of such items, etc.).
- 3.5 No travel expenses are included in this contract.

PROVIDER understands that PROVIDER shall be responsible for any other expenses incurred by PROVIDER in performing the Services under this contract. This contract is subject to the availability of

funds. In the event funds are not appropriated or become unavailable, the COUNTY may terminate this Contract without penalty upon written notice. COUNTY shall have no obligation to pay for Services that are not performed in accordance with this Contract or that are not accepted by COUNTY. Payment by COUNTY shall not constitute acceptance of Services and shall not waive any claims arising from defective or nonconforming performance. COUNTY may withhold payment for disputed charges, defective work, incomplete deliverables, or failure to comply with this Contract.

4. PAYMENT TERMS

The COUNTY will make payment to PROVIDER within thirty (30) days of the statement date or otherwise pursuant to Texas law for the making of payments by local government entities.

5. AGENCY-INDEPENDENT CONTRACTOR

Neither COUNTY nor any employee thereof is an agent of PROVIDER, and neither PROVIDER nor any employee thereof is an agent of COUNTY. This contract does not and shall not be construed to entitle either party or any of their respective employees, if applicable, to any benefit, privilege or other amenities of employment by the other party. PROVIDER possesses and shall maintain insurance with companies authorized to do business in Texas with minimum limits of commercial general liability insurance in the amount of \$1,000,000 per occurrence and \$2,000,000 aggregate; professional liability insurance (Errors and Omissions) in the amount of \$1,000,000 per claim; worker's compensation within Statutory limits; and automobile liability in the amount of \$1,000,000 combined single limit. Certificates of Insurance shall be provided to COUNTY before Services begin. PROVIDER shall provide at least thirty days written notice of cancellation or material reduction in coverage. To the fullest extent permitted by law, PROVIDER shall defend, indemnify, and hold harmless Burnet County, its officers, elected officials, employees, and agents from and against any and all claims, damages, losses, liabilities, fines, penalties, costs, and expenses, including attorney's fees arising out of or resulting out from PROVIDER'S negligent acts or omissions, PROVIDER'S breach of contract, the acts or omissions of PROVIDER'S employees, agents, or subcontractors, violations of law by PROVIDER, or any claims that any deliverable, software, dataset, image report, or work product infringes the intellectual property rights of a third party.

6. OWNERSHIP OF WORK PRODUCT

All reports, databases, GIS files, shapefiles, spreadsheets, images, photographs, field data, pavement-condition information, PCI calculations, IRI calculations, maps, analyses, recommendations, and other deliverables created or collected under this Contract shall become the property of Burnet County upon payment. PROVIDER grants COUNTY a perpetual, irrevocable, royalty-free right to use, modify, reproduce, distribute, and share all deliverables for governmental purposes. PROVIDER shall execute any documents reasonably required to evidence COUNTY ownership rights.

7. WARRANTY

PROVIDER warrants that Services shall be performed in a professional and workmanlike manner; the deliverables shall materially conform to the requirements of this Contract and the Proposal; the data collection and analysis shall be performed in accordance with the ASTM standards referenced in the Proposal; and that the deliverables shall be free from known defects. Upon written notice by COUNTY, PROVIDER shall promptly correct any nonconforming Services or deliverables at no additional cost.

8.

ASSIGNMENT AND SUBCONTRACTING

Neither party may assign, in whole or in part, any interest it may have in this contract without the prior written consent of the other party. PROVIDER may not subcontract any material portion of the Services without approval of County. PROVIDER shall remain fully responsible for all acts and omissions of subcontractors.

9.

THIRD PARTY BENEFICIARY EXCLUDED

This contract shall not be interpreted to inure to the benefit of a third party not a party to this contract. This contract may not be interpreted to waive any statutory or common law defense, immunity, including governmental and sovereign immunity, or any limitation of liability, responsibility, or damage of any party to this contract, party's agent, or party's employee, otherwise provided by law.

10.

AUDIT OF RECORDS

PROVIDER shall maintain complete records relating to this Contract for a period of four years following final payment and shall make such records available to COUNTY, the Texas State Auditor, or other authorized governmental entities upon reasonable request.

11.

TEXAS PUBLIC INFORMATION ACT

PROVIDER acknowledges that COUNTY is subject to Chapter 552, Texas Government Code. All documents and information in COUNTY'S possession may be subject to disclosure unless otherwise protected by law. PROVIDER shall cooperate with COUNTY in responding to requests for public information.

12.

DATA SECURITY

PROVIDER shall implement reasonable administrative, technical, and physical safeguards to protect county information and data. PROVIDER shall notify COUNTY within seventy-two hours of discovery of any unauthorized access, security incident, or data breach affecting information obtain through this Contract.

13.

REQUIRED VERIFICATION

PROVIDER verifies that it does not boycott Israel and will not boycott Israel during the term of this contract. The term "boycott Israel" is defined by Texas Government Code Section 808.001, effective September 1, 2017. PROVIDER further verifies that it is not engaged in business with Iran, Sudan, or any foreign terrorist organization. The term "foreign terrorist organization" means an organization designated as a foreign terrorist organization by the United States Secretary of State as authorized by 8 U.S.C. Section 1189.

14.
GENERAL TERMS

This contract represents the entire understanding of and between the parties and supersedes all prior representations. This contract may not be varied orally, but must be amended by written document of subsequent date duly executed by these parties. This contract shall be governed by the laws of the State of Texas and venue for any action under this contract shall be in the state and federal courts located in Burnet, Texas.

15.
TERMINATION

COUNTY may terminate this Contract immediately upon written notice for material breach, failure to perform, failure to maintain insurance, violation of the law, or failure to timely deliver required work products. If terminated for convenience, COUNTY shall pay only for Services satisfactorily completed and accepted through the effective date of termination. Except where immediate termination is authorized, PROVIDER shall have ten business days to cure a written notice of default. Any notice or other writing required by this contract, shall be deemed given when personally delivered or mailed by certified or registered United States mail, return- receipt, postage prepaid, addressed as follows:

COUNTY:
Bryan Wilson
Burnet County Judge
220 S. Pierce
Burnet, TX 78611

PROVIDER:
Fugro USA Land, Inc.
11211 Taylor Draper Lane, Suite 320
Austin, TX 78759

16.
GOVERNMENTAL IMMUNITY

Nothing contained in this Contract shall be construed as a waiver of governmental immunity, sovereign immunity, official immunity, statutory protections, or other defenses available to Burnet County under Texas law.

17.
CONFLICT OF INTEREST

PROVIDER shall comply with Chapter 176, Texas Local Government Code, and shall timely file any required conflict-of-interest disclosures.

18.
VENUE

This Contract shall be governed by Texas Law. Venue for any action arising under this Contract shall exclusively lie in Burnet County, Texas. Where federal jurisdiction exists, venue shall lie in the United States District Court having jurisdiction over Burnet County.

19.
SURVIVAL OF CONTRACT TERMS AFTER TERMINATION

The provisions concerning indemnification, ownership of deliverables, confidentiality, data security, audit rights, record retention, warranties, governmental immunity, and dispute-related obligations shall survive termination or expiration of this Contract.

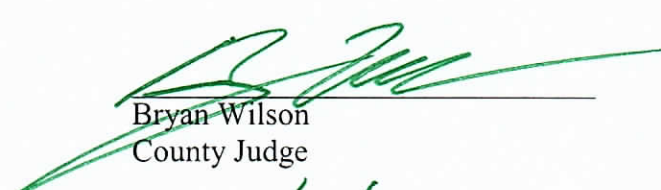
20.
ADA Compliance

Provider represents and warrants its compliance with the requirements of the Americans With Disabilities Act (ADA) and its implementing regulations, as each may be amended.

APPROVED on this day the 28 day of July, 2026, by Burnet County.

BURNET COUNTY
STATE OF TEXAS

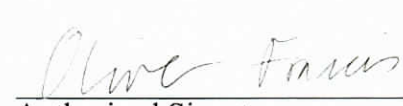
FUGRO USA LAND, INC.



Bryan Wilson
County Judge

Date

8/21/2026



Authorized Signature

Date 08/21/2026



Pavement Analysis and Related Services for Burnet County, Texas

Date: July 13, 2026



Submitted to:

Burnet County
220 S. Pierce Street
Burnet, TX 78611

Submitted by:

Fugro USA Land, Inc.
11211 Taylor Draper Lane, Suite 320
Austin, TX 78759

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July 13, 2026

Fugro USA Land, Inc.
11211 Taylor Draper Lane, Suite 320
Austin, TX 78759

Megan Schumann
Assistant Auditor
Burnet County
220 S. Pierce Street
Burnet, TX 78611

Subject: Proposal for Pavement Analysis and Related Services for Burnet County, Texas

Dear Ms. Schumann,

Fugro USA Land, Inc. (Fugro) is pleased to submit our proposal to provide pavement analysis and related services for Burnet County (County). Fugro has over 75 years of experience in pavement and asset data collection, implementing and updating pavement management systems (PMS), and geotechnical and pavement engineering. Fugro understands that maintaining valuable assets, such as roadway infrastructure, has never been more critical and complex due to budget constraints and the growing usage of the infrastructure system.

We appreciate the opportunity to discuss our services with you and the County. We have had the privilege of providing asset data collection and condition assessment services to North Central Texas Council of Governments (NCTCOG) participating agencies for over 20 years, and this offers us a unique understanding of the needs and expectations of the County.

The following proposal is based on other similarly sized projects and discusses our team's experience and qualifications, our proposed methodology and approach, as well as the tools and equipment necessary to carry out the scope of work.

Please do not hesitate to contact me at 512-977-1851 or by e-mail at salavi@fugro.com if you have questions or need additional information.

Best Regards,

A handwritten signature in blue ink, appearing to read 'Sirous Alavi'.

Sirous Alavi, Ph.D., P.E., PTOE

Director of Pavement Engineering & Infrastructure Management, Americas

Section A provides general descriptions of Fugro services. Section B describes the proposed scope of work. Section C provides our pricing proposal.

Section A: Description of Services

A.1 Introduction

Fugro USA Land, Inc. (Fugro) has over 75 years of experience with pavement and roadway asset data collection and offers a strong record of successfully providing services. Fugro provides services for all aspects of pavement management and evaluation, planning and oversight, developing maintenance and rehabilitation strategies, and optimizing network conditions within available budgets. Our services deliver value by planning, accurately diagnosing, and prioritizing maintenance and rehabilitation activities. The following provides a high level overview of the services.

A.1.1 Pavement Data Collection and Processing

Fugro operates a fleet of Automatic Road Analyzer (ARAN) vehicles that automatically and continuously measure over 15 different data types simultaneously on arterial, collector, and local streets with various surfaces. Typical data types collected include:

- Roughness, smoothness, ride, and International Roughness Index (IRI)
- Rutting and Transverse Profile
- Pavement Distress
- Pavement and Right-of-Way (ROW) Images
- Faulting

Fugro has developed our Vision software for the processing and analysis of pavement condition data. Vision is a customized digital condition rating system that can be configured for user defined severity/extent based upon pavement distresses and pertinent roadway attributes. Data can be exported to a pavement management system (PMS) or an asset management system (AMS), and it can be easily customized for industry standard reporting.

A.1.2 Data Viewing and Managed Hosting

Fugro's iVision is a web-based software that offers the ability to review the collected data and images. The County will benefit from the functionality of Fugro's iVision software completely free of charge for one year. With over 1 Petabyte (1 billion Megabytes) of data storage, we currently provide such managed services for numerous State and municipal agencies within the U.S.

A.1.3 Pavement Management System (PMS) Services

Fugro is experienced with a variety of pavement management software packages such as OpenGov's Cartegraph, StreetSaver, Trimble's AgileAssets, and PAVER. Our experience with these software packages includes developing condition listings, condition maps, work plans, budget optimization, and maintenance and rehabilitation alternatives for agencies. Fugro can provide tailored pavement management solutions to NCTCOG Participants based upon their specific

requirements. Fugro has provided pavement management services for all different sized agencies with a wide variety of needs:

- Data migration from legacy systems
- Loading of Pavement Management Data
- Pavement Management Implementation
- Pavement Management Update
- Geographic Information System services
- Work plans, budget analysis, and network condition reporting
- Performance Modeling
- Computer Hardware and PMS/Asset Software
- Presentations to County Councils and Commissioners Courts

A.1.4 Training

Fugro's certified professionals have years of experience providing clients and engineering professionals with a variety of training and continuing education courses pertaining to pavement design, materials, pavement management, and pavement preservation.

A.1.5 Asset Inventory

Fugro has extensive experience collecting roadway assets and has extracted and delivered over 70 different asset types totaling 5.1 million unique assets over 216,000 miles of road for municipal and State agencies since 2008. Fugro's Surveyor software uses the calibrated geo-referenced images collected by the ARAN to capture, extract, measure, and store data on client's visible roadside assets. Surveyor can be used for asset data extraction for sidewalks (location, length, width and condition), curb ramps (location, configuration, presence of truncated domes or other detectable warning features, condition), and roadway signs (type, location). Assets can be provided via geodatabases for incorporation into the County's GIS system.

A.2 Overview of Automated Equipment

Developed in 1977, our ARAN was the first automated data collection vehicle available in the market and continued to evolve with the latest technology and equipment. Figure 1 shows our current sixth generation ARAN. The ARAN includes cutting-edge gyroscopes, sensors, cameras, computers, software, and related equipment, all designed to withstand the rigors of collecting seven days a week, 365 days a year in all landscapes and climates. Fugro's experience and industry knowledge have allowed us to be innovative and responsive to the changing economic conditions facing transportation agencies, balancing reduced budgets, and staffing with the demands for maintaining a safe, reliable, and efficient transportation network.

Currently, we are working with over half the North American DOTs and many municipalities providing a full range of innovative custom roadway management solutions including data collection, PMS services, and M&R work plan development. Client satisfaction and trust are top priorities for us. We have developed many long-standing clients with this sound approach. We are currently working with over twenty (20) States/Provinces in North America.

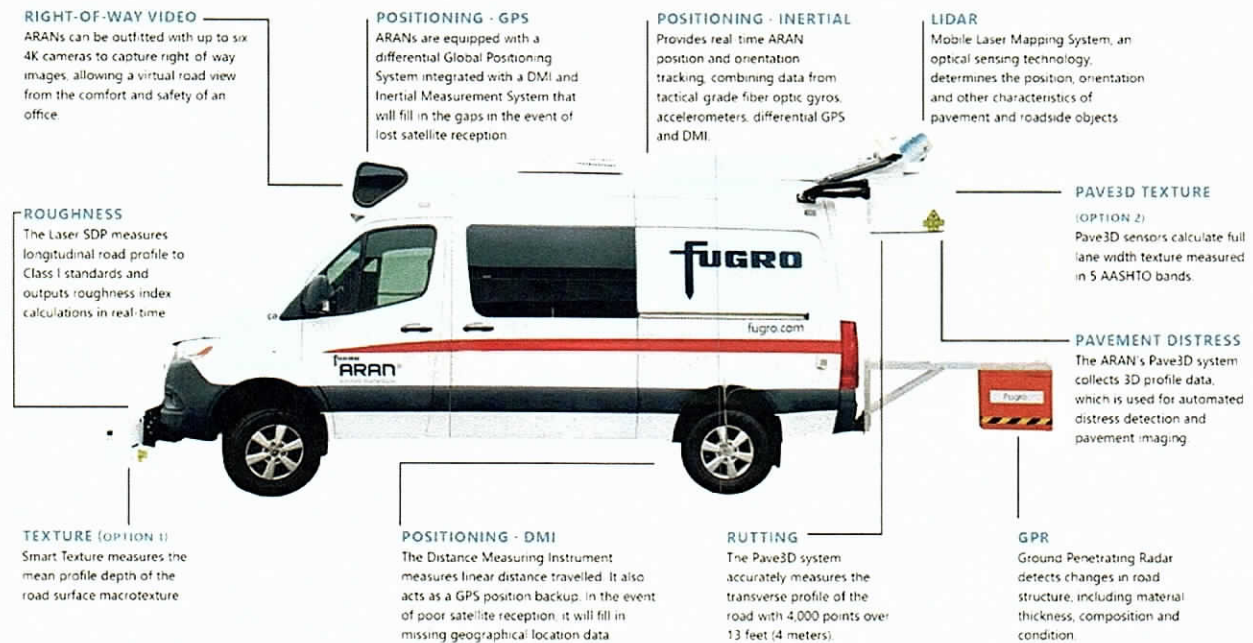


Figure 1: Automatic Road Analyzer (ARAN)

The following describes some of the specific ARAN subsystems that are pertinent to the project.

A.2.1 Locational Referencing and Positioning

The ARAN is equipped with a Distance Measuring Instrument (DMI) mounted on the driver's-side rear wheel as shown in Figure 2. The DMI is used to provide distance based triggers to the ARAN subsystems and translate wheel revolutions into measurements of velocity and linear distance traveled. The DMI meets the Class 1 requirements per ASTM E950, Standard Test Method for Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference.



Figure 2: Distance Measuring Instrument (DMI)

The ARAN also incorporates a Differential Global Positioning System (DGPS) using Applanix's POS LV 220. The POS LV is Global Navigation Satellite System (GNSS)-aided inertial technology that mitigates the real-world effects of GPS outage.

The POS LV 220 tracks and reports the position (latitude, longitude, and elevation) and orientation (heading) of the ARAN in real-time using complementary locating technologies. The GPS corrects any drift evident in the inertial sensor over time, while the inertial sensor ensures that accurate positioning will be continuously available, even during periods of GPS outage due to tree canopy, mountainous terrain, tunnels, or urban canyons. Figure 3 is an image of the Applanix POS LV system.



Figure 3: Applanix POS LV

A.2.2 Downward Pavement Image Collection

Fugro's Pave3D uses downward-facing high-speed cameras, custom optics, and laser line projectors to output range and intensity data, which derive a 3D image of the pavement surface as seen in Figure 4. These capabilities improve performance of post-processing techniques resulting in superior accuracy for identifying pavement crack severity. These images facilitate automated and manual crack identification methods.

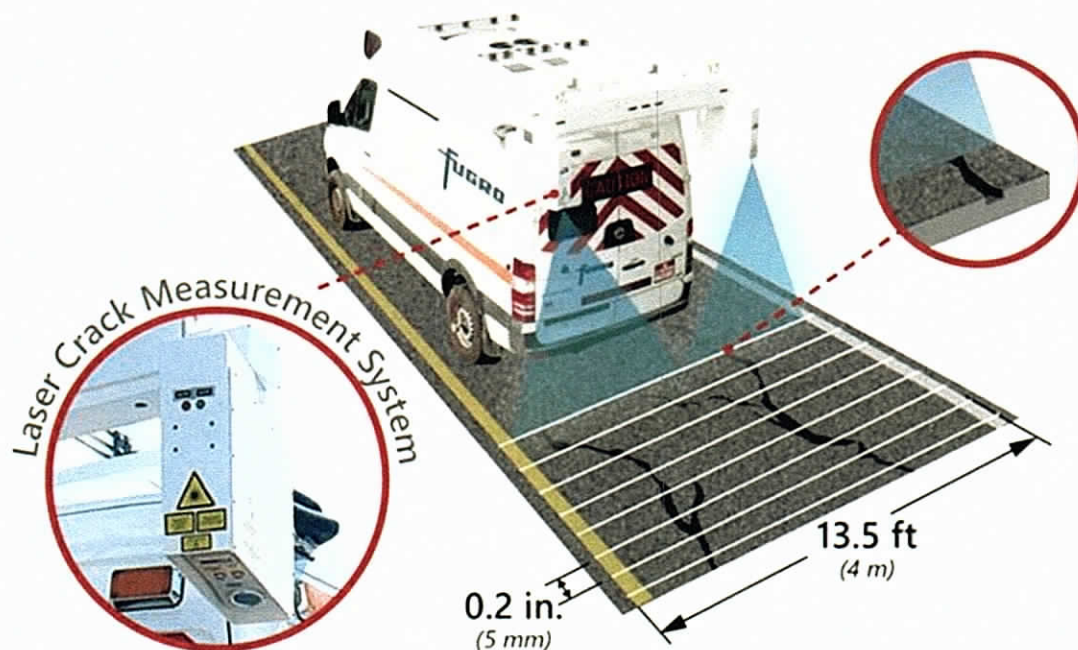


Figure 4: Downward Scanning Capabilities

Figure 5 depicts the range, intensity, and 3D views captured by Fugro's Pave3D system. The range image represents depth in grayscale; lower elevations due to defects like cracks, potholes, corner breaks, etc., appear dark. A range image means only actual pavement distress is detected and no

other artifacts on the road like oil, skid marks, or dampness in hairline cracks. The intensity image is a more "traditional" camera image showing the surface as the human eye would see it. An intensity image is essential for the visual verification of non-crack-related distresses like raveling. The 3D view combines the Range and Intensity images to provide an enhanced image of the roadway that is ideal for visual rating and quality control of the cracking detected by the automated distress tool. Using both range and intensity information matched pixel for pixel, we can better determine the exact locations of cracks based on width, depth, texture, color, and other surrounding features.

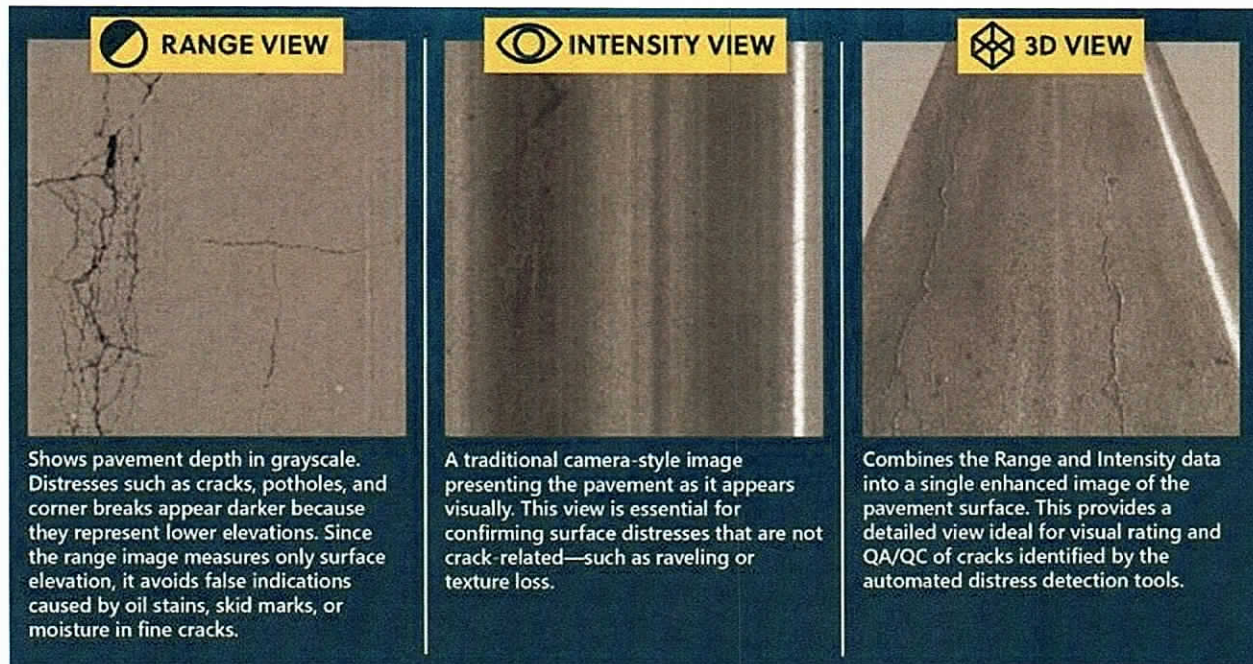


Figure 5: Range View (left), Intensity View (middle), and 3D View (right)

Some of the advantages of using the Pave3D system over conventional pavement images include:

- Uninterrupted operation in all lighting conditions during the day and at night without the need for artificial pavement illumination.
 - Sun and shadows and various pavement types ranging from dark asphalt to light-colored concrete can be measured at highway survey speeds and on roads reaching 14 feet in width and still achieve the 0.19 inches longitudinal resolution.
- Continuous collection of pavement images along the roadway's length with no interruptions.
 - This feature allows the user to select their desired reproduction interval length of generated pavement images, which align with predetermined right-of-way image intervals. The high-definition images are processed for various condition and distress ratings within Fugro's Vision software.

A.2.3 Laser SDP (South Dakota Profiler)

Fugro's Laser SDP (South Dakota Profiler) system shown in Figure 6 is a non-contact Class 1 inertial profiler (per ASTM E950) that uses lasers and accelerometers mounted at the front of the vehicle over each wheel path. The system measures the longitudinal profile for 100% of all lane miles to calculate International Roughness Index (IRI) and Ride Condition Index (RCI) for maximum accuracy. The equipment conforms with AASHTO R 57 "Standard Practice for Operating Inertial Profiling System".

The ARAN saves raw longitudinal profile data for every one (1) inch of pavement in both wheel paths along with the standard deviations of each. The result is computed IRI values (in inches/mile) for each segment for both the left and right wheel paths. Highlights of Fugro's Laser SDP system for IRI data collection include:

- Equipped with GoCator dispersion lasers providing a full 100mm (4-inch) line of data across the road surface (like that of a tire footprint). This offers improved consistency, repeatability, and accuracy in the collection of the longitudinal profile.
- Ability to collect at variable testing speeds while maintaining a bias of less than 5%.
- Allowance for testing at low speed and "Stop and Go" conditions.
- High accuracy; measurements within $\pm 5\%$ of all popular manual profiling techniques.
- High repeatability with standard deviation for repeat runs within $\pm 5\%$ of the mean. GoCator sensors' use further improves on this consistency, regardless of the testing surface type or condition.
- Real-Time IRI reporting for immediate operator identification of system issues.
- Two standard conformance tests, one static, and the other dynamic, ensure that both the laser and accelerometer components of the system are operating as intended.
- Multiple parameters reported, including mean and max IRI and standard deviation by segment.

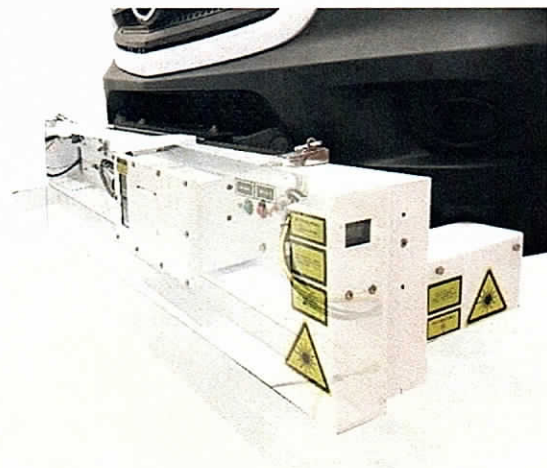


Figure 6: ARAN Laser SDP

Fugro has developed reliable, speed-sensitive algorithms to improve the accuracy of the longitudinal profile calculated in low speed zones. These algorithms reduce the impact of the unwanted frequencies in the accelerometer signal that affect profile and IRI calculations. Since the low-speed algorithms are non-casual, meaning that they incorporate future data into the calculation, the low speed roughness feature recalculates the longitudinal profile and IRI during the processing stage for maximum accuracy and repeatability.

A.2.4 Right-of-Way (ROW) Images

With our long history of working with States, Counties, and municipalities, we understand the value that transportation agencies receive from high quality digital images that offer a clear, focused view of the roadway and surrounding area. We have taken great care to source, calibrate, and maintain the best cameras in the industry. The image collection for this project will include both continuous ROW and downward facing pavement imaging. Collection will be performed on dry pavement and when weather and light do not inhibit visibility of pavement and ROW.

ROW cameras will capture the lane of travel and ROW. These images shall be captured at a minimum interval (e.g., 25 feet), at typical speeds, and will provide 100% and continuous coverage of the ROW in full-frame with a high pixel resolution. The ARAN will collect ROW images utilizing Sony FX9 HD cameras that offer a resolution up to 3840 x 2160 pixels at 16:9 aspect ratio. Figure 7 provides an example of Fugro's superior ROW image quality collected for one of our current clients. Each image is tied to a GPS location as well as a linear reference, which allows all images to be tied back to each other. All images can then be used to extract visible assets now or in the future.

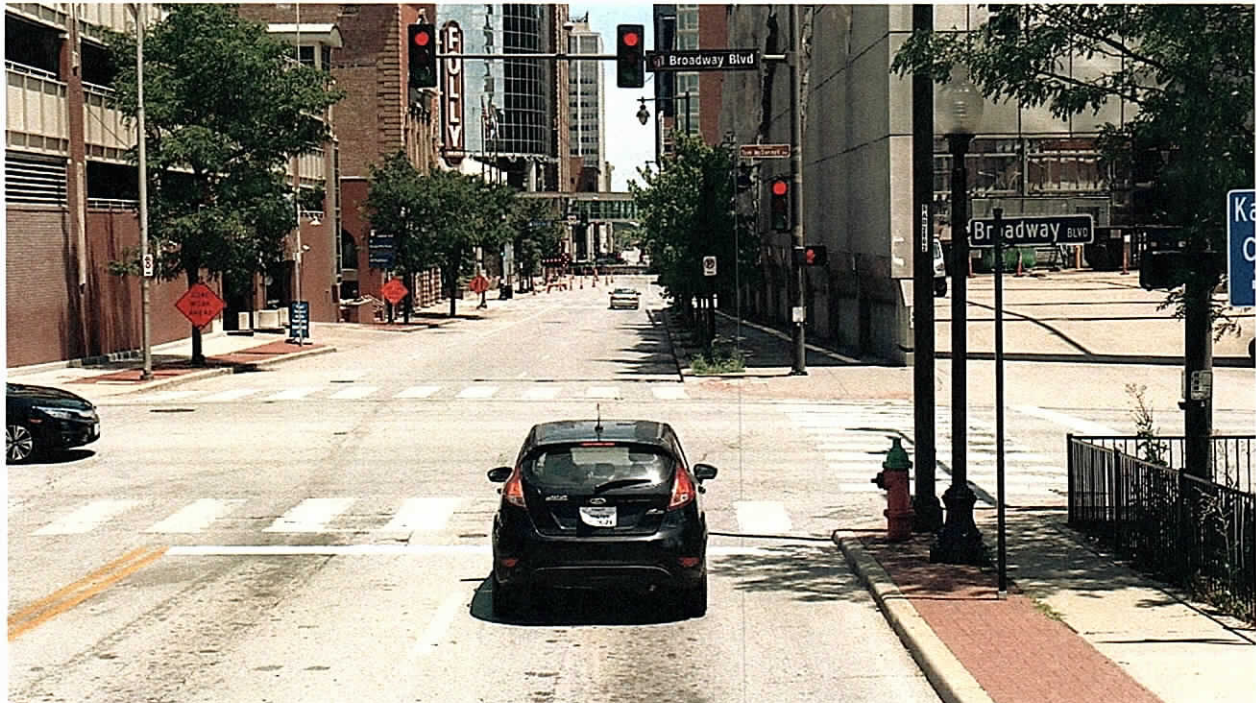


Figure 7: Example of Fugro's Superior ROW Image Quality

Section B: Scope of Work

B.1 Overview

The County has provided a list of roadways totaling approximately 118 centerline miles for data collection. Table 1 lists County Roads provided to us by the County. The County has confirmed that only a single direction of travel is required to be collected for each roadway.

Table 1: Selected Country Roads

Precinct	County Road	Other Name	From	To	Estimated Centerline Miles
1	CR 103	Dobyville Cemetery Road			6.6
1	CR 101	Lampasas Burnet Road			8.0
1	CR 108	San Saba Road			15.7
1	CR 122	Slaughter Mountain Road			4.0
2	CR 200	Shady Grove Road	FM 963	FM 1174	8.0
2	CR 207	Old Austin Road	FM 963	County Line	14.0
2	CR 220		FM 2657	County Line	2.5
2	CR 219		FM 2657	County Line	3.8
3	CR 330	Old Bertram Road / Westfall Street			8.5
3	CR 340	Mormon Mill Road			13.0
3	CR 341				4.4
3	CR 322	Old Hwy 29			2.9
4	CR 404	Double Horn Road / CF Wall Lane / Spicewood Road / Mike Wall Lane			12.0
4	CR 413	Gregg Drive			1.0
4	CR 401 (N&S)	Shovel Mountain Road			6.2
4	CR 403	Flat Rock Road			2.7
4	CR 410	Eagle Bluff Road			4.4
Total Miles					117.6

B.2 Right-of-Way (ROW) and Pavement Images

ROW and pavement images will be collected for each lane surveyed using the ARAN. ROW images will be collected at an interval of 25 feet, and pavement images will be collected continuously along the surveyed lane. All images will be delivered to the County on external hard drives. Images will also be available to the County for one year via Fugro's iVision viewing software.

B.3 Pavement Data Collection

The following data will be collected and reported to the County for each lane surveyed using the ARAN:

- Street Name
- Segment ID
- Inventory Date
- Pavement Type
- Functional Class (if available)
- Pavement Condition Score
- Rutting
- International Roughness Index (IRI)
- Surface Distress

B.3.1 Distress Standards & Pavement Condition Index (PCI)

The images provide a visual representation of various cracking types, surface defects, patches, and other distresses along the roadway. Fugro will identify the distresses as defined in American Society for Testing and Materials (ASTM) D6433, Standard Practice for Roads and Parking Lots Pavement Condition Index Survey. The ASTM D6433 standard is used by many municipalities worldwide to calculate PCI for their roadway networks. PCI uses a scale from 0 to 100, where 0 represents a completely failed pavement and 100 represents a pavement in perfect condition. PCI is calculated based on the type, severity, and extent of surface distresses. Each distress type includes a severity level (i.e., low, medium, and high) and has a different impact or "deduct" value for pavement condition depending on its quantity (i.e., extent). Since each distress type has a different impact on pavement performance, deduct values are specific to individual distresses in accordance with the ASTM D6433 standard. High severity distresses and/or high distress quantities result in more reductions in PCI scores. In general, deduct values for fatigue cracking are higher than deduct values of other types of cracking. Presence of load related fatigue cracking results in lower PCI scores, when compared with similar severities and extents for cracking associated with environmental conditions such as transverse cracking. Table 2 and Table 3 present the asphalt and concrete pavement distresses and their classifications.

Table 2: Asphalt Concrete Pavement Distresses and Classification

ID #	Load Related	ID#	Climate/Durability Related	ID#	Other Related
1	Alligator Cracking	3	Block Cracking	2	Bleeding
7	Edge Cracking	8	Joint Reflection Cracking	4	Bumps & Sags
13	Pothole	10	Longitudinal/Transverse Cracking	5	Corrugation
15	Rutting	19	Raveling	6	Depression
		20	Weathering	9	Lane/Shoulder Drop Off
				11	Patch/Utility Cut
				12	Polished Aggregate
				14	Railroad Crossing
				16	Shoving
				17	Slippage Cracking
				18	Swell

Table 3: Concrete Pavement Distresses and Classifications

ID #	Load Related	ID#	Climate/Durability Related	ID#	Other Related
22	Corner Break	21	Blow Up	25	Faulting
23	Divided Slab	24	Durability Cracking	27	Lane/Shoulder Drop Off
28	Linear Cracking	26	Joint Seal Damage	29	Large Patch/Utility Cut
34	Punchout	37	Shrinkage Cracking	30	Small Patch
		38	Corner Spalling	31	Polished Aggregate
		39	Joint Spalling	32	Popouts
				33	Pumping
				35	Railroad Crossing
				36	Scaling

B.3.2 Data Processing Software – Vision

Fugro’s Vision software with automated and semi-automated algorithms for pavement distress detection, classification, and rating per ASTM D6433 is used to accurately process the ARAN data. Vision’s Report Generator module facilitates the creation of custom reports and data deliveries using post-processed collection of all pavement performance parameters. This module allows Fugro staff to modify and apply reporting templates to ensure that data conforms to client requirements.

B.4 PCI Calculation

Fugro will utilize a Fugro licensed PMS software or proprietary coding to determine the PCI scores for every street segment identified in the data collection program. The PCI scores will be provided to the County in electronic format (i.e., MS Excel format) and also GIS shapefile for upload to the County’s GIS database.

B.5 Data Viewing Software – iVision5

Fugro’s iVision5 viewing software provides the agency with a powerful tool to review collected images and asset data in a synchronized GIS-based environment. iVision5 is hosted by Fugro and available on any device with access to the internet. Fugro will upload all raw images and data to our Vision processing software, data will be processed by our team, and post processed data will be synchronized with iVision5. Figure 8 provides an example of one display option for iVision5’s rich dashboard layout. All displayed data is played in a synchronized view as the user navigates along the roadway on the GIS-based map. The agency will then be provided with multiple licenses to use the software for one year at no additional cost. After one year, licenses can be renewed annually for an additional cost.



Figure 8: iVision5 Dashboard Example

B.6 Deliverables

Fugro will provide the following deliverables:

- **Geodatabase Delivery** – Fugro will deliver an ESRI compatible geodatabase with distress data, PCI, IRI, and other attribute data.
- **Data Delivery Files** – Fugro will provide electronic files (e.g., Excel or CSV) with segment information.
- **Image Delivery** – Fugro will deliver all the collected images (i.e., pavement and ROW) to the County on a hard drive.
- **iVision5 access** – Images will be available on Fugro's iVision5 dashboard.
- **Final Report** – Fugro will prepare a comprehensive final report for the County. The report will include the pavement network inventory with PCI scores.

Section C: Pricing Proposal

Table 4 represent Fugro's proposed fee for this project, which includes 118 centerline miles of pavement data collection. This fee is compliant with the NCTCOG North Texas SHARE contract for pavement analysis services. The fee does not include the assessment, purchase or implementation price of a PMS software for the County. Due to the proximity of Burnet County to Fugro's Austin operations, we are providing a 30% discount from our usual pricing for a total of \$34,601.

Table 4: Price Proposal

Activity #	Activity Description	Provide Price Per Tiered Group		A		B		C=AxB		30% Discount Cost
		Unit	Unit Base Cost (\$)	Total Units	Agreed Upon Cost (\$)/Unit	Total Agreed Upon Cost (\$)				
1	Automatically and continuously measure pavement cracking, texture, rutting and geometrics. Equipment used for rut measurement shall be capable of measuring both wheel track ruts simultaneously.	Lane Mile ¹		118	\$130	\$15,340			\$10,738	
2	Collect pavement surface distress and structural condition information through automated means for all Participant-owned roadways.	Lane Mile ¹		118	\$78	\$9,204			\$6,443	
3	Provide a customized digital condition rating system to collect user defined severity/extent based pavement distresses and pertinent roadway attributes to accommodate a standardized approach to collecting data	Lump Sum	\$2,600	1	\$2,600	\$2,600			\$1,820	
4	Collect dual-wheel path roughness data to International Roughness Index standards.	Lane Mile ¹		118	\$13	\$1,534			\$1,074	
5	Collect pavement performance information that includes rutting using a minimum of seven (7) sensors (include pricing for nine (9) sensors as well), fatigue cracking, transverse cracking using a minimum of four (4) sensors, and longitudinal cracking	Lane Mile ¹		118	\$26	\$3,068			\$2,148	
21	Calculate the International Roughness Index (IRI)for each road segment in accordance with ASTM E1926. Provide results compatible with the Participant's GIS database, if applicable.	Lane Mile ¹		118	\$6.5	\$767			\$537	
22	Calculate a Pavement Condition Index (PCI) score for each road segment using an approved pavement management system and in accordance with ASTM D6433 or ASTM E3303. Provide results compatible with the Participant's GIS database, if applicable.	Lane Mile ¹		118	\$19.6	\$2,313			\$1,619	
28	Roadway information that shall be collected and provided to the Participant at a minimum includes items a. through i. in Exhibit B	Lane Mile ¹		118	\$26	\$3,068			\$2,148	
29	Collect digital images at 25-foot intervals of the road surface condition and link to a geodatabase (minimum forward facing imagery).	Lane Mile ¹		118	\$13	\$1,534			\$1,074	
40	Full Written Final Report- Firm shall prepare and submit a written project report summarizing the work performed, dates of collection, methodology, and results.	Each Participant	\$10,000	1	\$10,000	\$10,000			\$7,000	
Total						\$49,428			\$34,601	

¹Lane mile is to be defined as a mile traveled as 1) A single pass on alleyways; 2) A centered single pass on residential streets; 3) the outside lane in each direction for collectors and arterials (2 total).