CONTRACT
CITY OF BROKEN ARROW
PAVEMENT MANAGEMENT SYSTEM
PROFESSIONAL SERVICES CONTRACT NUMBER ST1614

1. Professional Consultant Firm:

a. Name: IMS Infrastructure Management Services, LLC

b. Telephone No.: (480) 839-4347

c. Address: 1820 West Drake Drive, Suite 108, Tempe, AZ 85283

2. Project Title and Location: Pavement Management System, Broken Arrow, Oklahoma

3. Contract for: Consultant will survey the City of Broken Arrow maintained street system. The survey will be completed with a combination of laser RST and digital cameras. After the survey is completed, the gathered data will be used to provide the City with a sign and sign support database, pavement condition data, a detailed pavement analysis, a comprehensive 5-year street improvement plan and digital images at 25 foot intervals. Along with this data, Consultant will provide the City Council with a presentation on this process and will provide the Street and Storm Water Department with pavement management software, setup and training on this software. The data provided by this survey and subsequent analysis will enable the Street and Storm Water Department to be in a position to better prioritize and budget the City street maintenance and reconstruction work program to raise the overall condition level of our entire street system based on professionally backed data.

4. Contract Data:

a. Contract Amount: $272,199.00.

b. Liquidated Damages: N/A.

c. The total time allowed for contract completion is 210 calendar days.

5. The City of Broken Arrow ("City"), represented by the City Manager, and the Consultant, identified in paragraph 1 agree to perform this contract in strict accordance with the clauses, provisions, and the documents identified as follows, all of which are made part of this contract. In the event of conflict, these documents shall be interpreted in the following order:

a. This Contract

b. Duly Authorized Change Orders arising out of this Contract

c. Special Provisions set out in this Contract

d. General Provisions set out in this Contract

e. Consultant's Proposal for this Contract

6. Contract approved by the City Manager on: _____

CITY OF BROKEN ARROW
PAVEMENT MANAGEMENT SYSTEM
PROFESSIONAL SERVICES CONTRACT NUMBER ST1614

The City of Broken Arrow, an Oklahoma Municipal Corporation (City) and IMS Infrastructure Management Services, LLC (Consultant) with his principal place of business located at 1820 West Drake Drive, Suite 208, Tempe, Arizona 85283, hereby enter into the following Contract:

The City Manager representing the City desires to employ the professional services of the Consultant to prepare a Pavement Management System as outlined in the work plan.

The Consultant shall perform all duties, responsibilities and requirements set out in the Professional Services Contract Number ST1614, Pavement Management System Special Provisions Attachment, and the Consultant's Proposal, attached hereto and made a part hereof.

These duties, responsibilities and requirements shall begin upon the execution of this Contract and shall be completed within Two Hundred Ten (210) calendar days.

It is agreed that the Consultant shall be compensated at the rate of Two Hundred Seventy-Two Thousand, One Hundred Ninety-Nine and No/100 Dollars ($272,199.00) for the entire Scope of the Professional Services rendered. The Consultant shall submit invoices, requesting payment for services rendered, to the City Engineer on a monthly basis in accordance with the percentage of work completed. The invoices shall be in a format satisfactory to the City Engineer. Payment will be made following the first eligible City Council meeting occurring after the date on the invoice.

The Consultant agrees that this professional service shall be treated as an important service to the City and also agrees to commit the time necessary to perform the professional services in a professional manner.

The parties agree that the Consultant's position is not a traditional City employee position, therefore the foregoing constitutes all the benefits and other forms of compensation due the Consultant, acting in the role of an independent contractor, and therefore ineligible for all other benefits paid to regular full-time City employees. The Consultant agrees to abide by and comply with all of the City's Administrative Policies.

The Consultant shall acquire all insurance policies required for professional liability insurance, auto insurance, and/or health insurance. The Consultant shall be responsible for his own vehicle expenses and any other indirect costs incurred in fulfilling the stated contract requirements.

The foregoing Professional Services Contract supersedes all previous negotiations and may not be modified except by a written order executed by the parties hereto.

IN WITNESS WHEREOF, the parties hereto have caused this Contract to be executed by their duly authorized officers or representatives on the dates set forth below.

Approved as to form:

Leslie Myers
Assistant City Attorney

Attest:

City Clerk [Seal]

City of Broken Arrow, Oklahoma
A Municipal Corporation

By: _____
Michael Spurgeon, City Manager

Date _____

IMS Infrastructure Management Services, LLC

By: _____
1820 W. Drake Dr., Suite 108
Tempe, AZ 85283

Attest:

N/a
Corporate Secretary (Seal)

Date: September, 23, 2015

VERIFICATIONS

State of ~~Oklahoma~~ Arizona)
) ss.
County of ~~Tulsa~~ Maricopa)

Before me, a Notary Public, on this 23rd day of September 2015, personally appeared Stephen J. Smith, known to me to be the (President, Vice-President, Corporate Officer, (Member) Partner or Other: _____ (Please circle or specify)) of IMS Infrastructure Management Services, LLC, and to be the identical person who executed the within and foregoing instrument, and acknowledged to me that he executed the same as his free and voluntary act and deed for the uses and purposes therein set forth.

My Commission Expires:

1/24/2019

ZACHARY LESTER THOMASON
Notary Public - Arizona
Maricopa County
My Comm. Expires Jan 24, 2019

_____
Notary Public

CITY OF BROKEN ARROW
PAVEMENT MANAGEMENT SYSTEM
PROFESSIONAL SERVICES CONTRACT NUMBER ST1614
SPECIAL PROVISIONS ATTACHMENT

SPECIAL PROVISIONS
PROJECT NUMBER ST1614

SP - 1.0 SCOPE OF THE PROJECT:

1.1. Consultant will survey the City of Broken Arrow maintained street system. The survey will be completed with a combination of laser RST and digital cameras. After the survey is completed, the gathered data will be used to provide the City with a sign and sign support database, pavement condition data, a detailed pavement analysis, a comprehensive 5-year street improvement plan and digital images at 25 foot intervals. Along with this data, Consultant will provide the City Council with a presentation on this process and will provide the Street and Storm Water Department with pavement management software, setup and training on this software. The data provided by this survey and subsequent analysis will enable the Street and Storm Water Department to be in a position to better prioritize and budget the City street maintenance and reconstruction work program to raise the overall condition level of our entire street system based on professionally backed data.

SP- 2.0 SERVICES OF THE CITY: THE CITY WILL:

2.1. Furnish to Consultant all data, in its possession, necessary for the service provider to complete the contract requirements.

2.2. Designate in writing a person to act as its representative in respect to the work to be performed under this agreement. Such person shall have complete authority to transmit instructions, receive information, interpret and define the City's policies and decisions with respect to materials, equipment, elements and systems pertinent to the services covered by this agreement.

SP -3.0 SCOPE OF SERVICES: THE CONSULTANT SHALL:

3.1 As outlined in the attached Consultant Proposal. The Consultant will submit a revised work schedule after this Contract has been signed.

CONSULTANT'S PROPOSAL

Quotation for Professional Services

IMS Infrastructure Management Services
1820 W. Drake Dr. Suite 108. Tempe, AZ 85283
Phone: (480) 839-4347 Fax: (480) 839-4348
www.ims-rst.com

To:	Clint Myers, Sign Technician	**Date:**	August 17, 2015
From:	Zac Thomason, MBA – National Client Services Manager	**Project:**	City of Broken Arrow, OK
Subject:	Pavement Management Services	**Project No:**	

Thank you for taking the time to review the pavement data collection services offered by IMS Infrastructure Management Services. IMS excels in pavement and asset management solutions and can provide a full suite of data collection and software implementation services.

As we understand, the City of Broken Arrow currently manages its pavements with in-house surveys and maintains a spreadsheet/database for pavement management purposes. The City currently maintains approximately 622 centerline miles of roadway (plus 20 centerline miles of private roadways that will be surveyed strictly for asset-related services) and there is interest in a pavement condition update. IMS will survey approximately 782 test miles as we perform two passes on approximately 140 centerline miles of arterial roadways (includes private arterial roads).

The IMS approach to pavement data collection allows for detailed coverage of local and collector roadways with just a single pass. IMS collects all pavement distress data in accordance with a modified version of the ASTM D6433 data collection protocols. The base scope of this project includes a sign and sidewalk inventory/assessment, a detailed pavement analysis, and a comprehensive 5-year roadway improvement plan.

Our approach, and key service differentiator, is based on three, time proven fundamentals:

Answer the questions that are being asked – don't over-engineer the system or make it needlessly complicated. Databases and the application of technology are meant to simplify asset management, not make it more difficult.

Service and quality are paramount to success – the right blend of technically correct data, condition rating, and reporting will provide the agency with a long-term, stable solution. Service to the Client remains our top priority.

Local control and communications are key – it is important that all stakeholders understand the impacts of their decisions and have the system outputs react accordingly. We excel in making ourselves readily available.

Data Collection

IMS is unique to the industry, as an objective and repeatable data collection effort will be completed. The Laser RST will be used to perform a surface condition assessment of all City streets. Instead of using the subjective feet on ground or windshield sampling method, all data will be collected continuously and segmented into 100-foot intervals in the form of a detailed database complete with GPS coordinates. The data will also be aggregated to the section level, following the sectioning and referencing methodology determined after IMS and City review.

GIS and Pavement Management Linkage

The role of GIS in pavement management cannot be overstated. It is a powerful tool that provides the capability to handle and present vast amounts of data in an efficient manner. IMS can provide a link between the City's GIS program and the pavement management data to enable the City to display and generate color-coded maps based upon existing pavement conditions, street rehabilitation plans or most of the data developed as a part of the pavement management program. An output of such a plot is illustrated in the adjacent image.

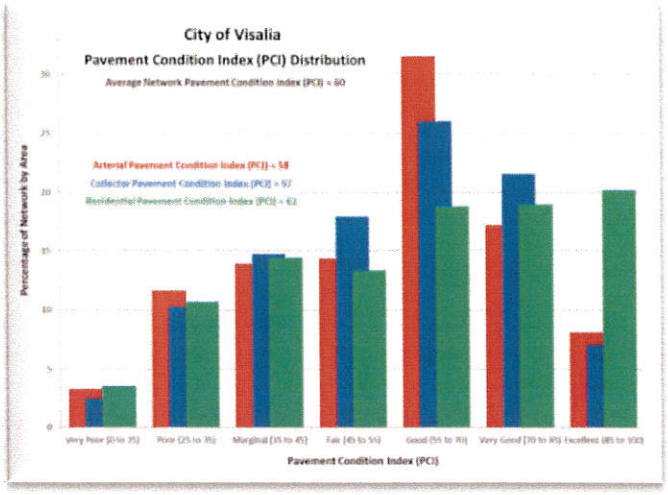
Video Logging and Right of Way Asset Data Collection

While the RST is traversing the roadway, up to 5 digital cameras can be mounted inside the RST to collect video and images of the pavement and right of way assets. The following views are typically captured; driver front (forward view), passenger front (ROW view), and driver rear (adjacent ROW view). Additional views can be mounted if deemed necessary by the City of Broken Arrow. All video is processed in-house; developed as an image library at 25-foot intervals for use in QA/QC. This video is also used for optional asset inventories and video logging.

Pavement Analysis, Budget Development, & Report

IMS has extensive experience working with many different pavement management systems. The IMS engineering team has specifically developed our data collection tools and processing/scrubbing/reduction and upload capabilities to facilitate a seamless transition of data collected in the field into robust deliverables.

Unlike most data collection surveys, IMS collects data on 100% of the pavement network. The data is collected in 100-foot intervals and aggregated to the segment level. This approach is more accurate than the typical sampling methodology as it greatly removes any statistical bias/skewing of the results. Following the completion of the pavement surveys, data processing, and loading of the data to the selected application, IMS can begin development of a final analysis and report.



The primary function of the pavement analysis is to examine predicted changes in pavement condition over time. Current conditions are compared with future conditions so the effects of maintenance activities can be evaluated. Also, future conditions without any preventive or major activities are also predicted. This process of evaluating pavement sections is based on the current condition, pavement treatments, performance curves, and budget analysis results.

The following items would be included in an IMS analysis & report:

- *Street ownership and inventory/attribute report*
- *Present condition ranking* - identify the current condition of each street in the network, as well as the network as a whole.
- *Fix all budget analysis* – this identifies the upper limit of spending by rehabilitating all streets assuming unlimited funding.
- *Do nothing analysis* – this identifies the effects of completing no roadway rehabilitation.
- *Steady state rehabilitation life cycle analysis* – this identifies the minimum amount of rehabilitation that must be completed in order to maintain the existing level of service.
- *Plus or minus 50% and other additional runs*- additional budget runs are completed at rates of +50% and -50% of the suggested steady state analysis. Additional budget runs can be completed at the request of the City. Up to 10 budget scenarios will be run.
- *Integration of capital projects and City Master Plans* – ongoing and proposed projects that affect roadway rehabilitation planning will be incorporated into the analysis.
- *Draft 5 year rehabilitation and prioritized paving plans* – based on need, available budget and level of service constraints – a minimum of three budget runs will be completed.
- *Final prioritized paving plan* – incorporating feedback from stakeholder departments and utilities, complete with budget and level of service constraints.

Right of Way Assets – Traffic Sign Inventory Development

The RST uses high-end GPS coordinate data and digital cameras positioned so that all attributes/assets requiring data capture are visible in either, the front, side, or rear cameras. The images and GPS data are merged on a frame-by-frame basis along with the sign inventory. The images are then post-processed using a specialty piece of GIS and roadway image viewing software. Using RST imagery, the existing centerline GIS, and aerial photography, IMS can spatially plot each sign in its real world location.

The IMS technology is an open architecture system that allows virtually any type of attribute/asset to be defined for collection of location, attribute, and condition data. Once the sign/post attribute is observed, the operator toggles to the individual record input screen and proceeds to input the appropriate attribute and associated information. Wherever possible, "pick lists" are employed to streamline the data entry function and provide uniform, high quality data. The photo to the right depicts an image an arterial network survey. The KMZ image depicts the signs/posts in their real-world location, with an activated sign listed with all applicable attributes.

Prior to completion of sign inventory database development, a document called the **Master Asset List** (MAL) will be developed, using each applicable exhibit as a starting point. The MAL will enhance upon description of the data attributes to be collected for the signs/posts. The MAL also defines the methodology for condition rating each asset. Essentially the MAL is the direct equivalent of a "data direction" and the final document will be an enhancement on the data requirements provided in the RFP.

IMS sign/post inventory, condition, and database development projects are comprehensive and exhaustive. Our trained technicians review all RST video collected to acquire sign imagery and visual attributes. Through the use of a specialty piece of GIS software, we can spatially plot each sign in its real world location. We take it one step further by adopting the most recent aerial photography to ensure all assets plot correctly in GIS and aerial photos. It takes very little time to assign an ID to each support, as well as the type, condition, material, placement, and orientation. Each support is linked to a corresponding sign (or group of signs if more than one is present). These attributes can be added to or revised during scope negotiations.

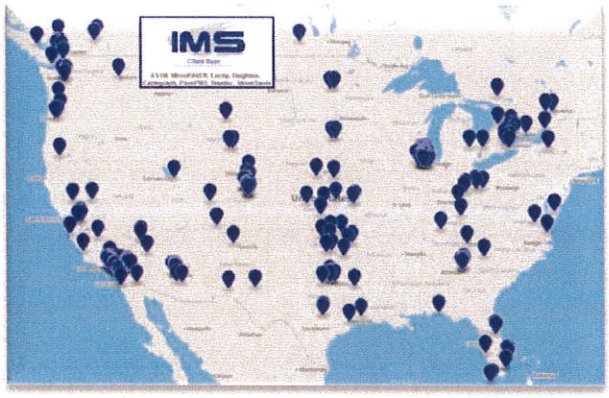
The sign inventory can be delivered in all of the following formats:

- Populated in Excel, Access, SQL, Oracle, or 3rd party software.
- Delivered as a personal geodatabases, a series of shape files, or SDE; and as a KMZ.
- Loaded to an online sign management software, such as IMSvue.

Project Profiles

Oklahoma is home to a long list of IMS clients. Our projects range from small town's such as Tahlequah to the larger Rogers County, with the majority of our clientele near metropolitan Oklahoma City and Tulsa. Throughout the state, *IMS serves as the asset management firm for the cities of Norman, Enid, Bartlesville, McAlester, Tahlequah, Ada, Edmond, Muskogee, Stillwater, Ponca City, and Rogers County.*

On all assignments, the IMS team utilized our Laser RST to perform a network wide pavement performance evaluation and ROW survey on asphalt and concrete roadways alike. The RST, equipped with an array of 11 lasers, digital cameras, GPS, and a touchscreen tablet drove the agencies roadways in an effort to update the pavement distresses and asset inventory data.



Our philosophy is based on the provision of quality pavement condition data for the implementation of multiyear pavement management plans. As illustrated in the adjacent map, our extensive reach throughout Oklahoma and the Interior Plains region will allow us to include **local comparison results** against the City's current roadway conditions. This comparison will highlight how the City's current PCI results stand up against other local Oklahoma agencies, in addition to other municipal regions. IMS is the only pavement management consultant who has enough local and regional expertise to offer such a wide-ranging comparison across multiple software platforms for PCI reporting.

Ada, OK: In 2014, IMS was selected to complete a comprehensive pavement distress survey for the City. IMS is in the process of surveying approximately 167 test miles of GIS linked pavement condition data along with the implementation of the PavePRO Manager software. The IMS team will also develop a comprehensive analysis and report that includes network recommendations and lifecycle analysis.

Bartlesville, OK: As Bartlesville's pavement management consultant since 2009, IMS has completed multiple pavement management program updates. The latest project in 2011 included data collection on 250 test miles of roadways. IMS processed the data to be properly formatted for the Lucity software, and then loaded to the pavement management module. An analysis and report was delivered.

McAlester, OK: In 2012, IMS teamed with the City for a multi-phased pavement management program update. IMS mobilized our Laser RST for data collection on the City's network over a two-year period. The 2013 assignment included 63 test miles, with all data linked to GIS. IMS delivered a network pavement condition report at the end on each phase.

Stillwater, OK: IMS has tested Stillwater's 320-mile road network in 2007 and in 2011. The pavement condition surveys include RST surface condition surveys, deflection testing with a Dynaflect, and GIS linkage for the IMS PavePRO Manager software. The 2007 project included right-of-way asset inventories for curb & gutter, storm inlets, sidewalks, and ramps; all loaded to the ROWMan software. The 2011 project included 220 miles of surface distress surveys, deflection testing, and software maintenance.

Project References

The following projects are provided as a testament to our ability to provide quality asset management services. IMS utilized the Laser RST for each of the following projects.

City of Edmond, OK (2006 & 2011)

Contact: Henry Fenton II, P.E., Project Engineer
Email: Harry.Fenton@edmondok.com
Phone: (405) 359-4770

In 2006 and again in 2011, IMS teamed with the City of Edmond to complete a pavement management program update. IMS implemented PavePRO Manager, IMS's comprehensive pavement management software. The RST was used to perform the surface condition surveys on 5,000 test sections or approximately 500 miles. IMS also mobilized a Dynaflect device to collect deflection information on the entire roadway network. The project also included detailed rehabilitation analysis, GIS Integration, digital images, software installation, 2 days of on-site software, training, and reporting. The deliverables included a detailed 5-10 year rehabilitation plan with annual budgets.

City of Norman, OK (2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, & 2014)

Contact: Robin Gonnerman, Pavement Maintenance Coordinator
Email: robin.gonnerman@ci.norman.ok.us
Phone: (405) 329-2524

Since 2005, IMS has performed annual pavement data collection projects with the City of Norman. IMS surveys approximately 150 to 175 test miles annually using the RST equipped with lasers, digital cameras, touch screen event boards, and inertial navigation. The IMS team also completes deflection testing of the City's roadway network for each project. To maintain continuity of the data, IMS utilizes the same PavePRO modified ASTM D6433 data collection protocols for each project. The PavePRO Manager pavement management module was configured to best meet the City's needs. The IMS team also performs routine annual maintenance for the PavePRO software with the updated condition data.

City of Muskogee, OK (2010 & 2014)

Contact: Mike Stewart, Director of Public Works
Phone: (918) 684-6333

In 2010, IMS was selected to provide the city of Muskogee OK with a citywide pavement condition assessment and implementation of the MicroPAVER pavement management system. The IMS RST was used to collect pavement condition and digital images on 388 miles of City streets. The MicroPAVER implementation included developing the City's network segmentation and GIS linkage, loading the pavement condition data and generating PCI scores, setting up all the analysis parameters in the application, generating a 5-10 year M&R program and providing 2 days of onsite training on the MicroPAVER system. The 2014 assignment included software and database verification activities. IMS updated City specific Zone/District maintenance and rehabilitation programs. IMS then delivered a final report and presentation.

Proposed Budget

The detailed budget presented below is based on the IMS work plan and deliverables. It represents a realistic budget to complete the work, and we are confident we can maintain an on-time, on-budget approach to the assignment.

Task	Activity	Quant	Units	Unit Rate	Total
	Project Initiation				
1	Project Initiation	1	LS	$3,000.00	$3,000.00
2	Network Referencing & GIS Linkage	782	T-Mi	$15.00	$11,730.00
	Field Surveys				
3	Mobilization/Calibration	1	LS	$3,000.00	$3,000.00
4	RST Field Data Collection - Pavements (2-pass Arterials)	760	T-Mi	$110.00	$83,600.00
5	Right of Way Asset Camera Configuration (City Maintained Roadways)	760	T-Mi	$20.00	$15,200.00
6	Right of Way Asset Camera Configuration (Private Roadways)	22	T-Mi	$75.00	$1,650.00
	Data Management				
7	Data QA/QC, Processing, & Format	760	T-Mi	$20.00	$15,200.00
8	Pavement Condition Data Supply (Excel, Shapefile, KML)	1	LS	$4,500.00	$4,500.00
9	Delivery of Digital Images @ 25 Foot Intervals (Per View)	782	T-Mi	$14.00	$10,948.00
10	IMSvue - Browser Based Data Viewer	1	LS	$7,500.00	$7,500.00
11	Sign & Support Database Development (Private Roads Included)	782	T-Mi	$90.00	$70,380.00
12	Pavement Analysis, Budget Development, & Report	1	LS	$8,500.00	$8,500.00
13	Council Presentation	1	LS	$3,000.00	$3,000.00
14	Pavement Management Software Implementation (Lucity or PavePRO - Streets & GIS Only)	1	LS	$15,000.00	$15,000.00
15	Project Management	1	LS	$18,991.00	$18,991.00
				Project Total:	**$272,199.00**

Thank you for considering IMS as a viable solution to your pavement management needs and we will strive to become an asset and extension of the Broken Arrow staff and team. If any questions arise please do not hesitate to contact me at (480) 839-4347 or zthomason@ims-rst.com.

Regards,

IMS Infrastructure Management Services

Zac Thomason, MBA
National Client Services Manager