Request for Legislative Action

Res. #21429
Sponsor: Charlie Franklin
Date: October 16, 2023

Completed by County Counselor's Office			
Action Requested:	Resolution	Res.Ord No.:	21429
Sponsor(s):	Charlie Franklin	Legislature Meeting Date:	10/16/2023

Introduction
Action Items: ['Award']
Project/Title:
Awarding a one time Sole Source contract to Infrastructure Management Services (IMS) of Tempe, Arizona in order to perform pavement condition assessment.

Request Summary
Public Works and Parks + Rec Departments require a vendor for assessment of the pavement condition of selected hard surfaces within the Park System and Public Works system. Pursuant to Section 1030.1 of the Jackson County Code, the Purchasing Department is recommending a Sole Source award to Infrastructure Management Services (IMS) of Tempe Arizona as they have the proprietary software and data previously used in the prior assessment. Public Works is expected to use $53,265 from Account: 004-1507-56080 and Parks + Rec is expected to use $26,800 from Account: 003-1608-56030.

Contact Information			
Department:	Finance	**Submitted Date:**	9/20/2023
Name:	Craig Reich	**Email:**	creich@jacksongov.org
Title:	Senior Buyer	**Phone:**	816-881-3265

Budget Information			
Amount authorized by this legislation this fiscal year:			$80,065
Amount previously authorized this fiscal year:			$ 0
Total amount authorized after this legislative action:			$80,065
Is it transferring fund?			No
Single Source Funding:			
Fund:	Department:	Line Item Account:	Amount:
004 (Special Road & Bridge Fund)	1507 (Special Projects in Public Works)	56080 (Other Professional Services)	$53,265
003 (Park Fund)	1608 (Construction Services)	58060 (Other Improvements)	$26,800

Request for Legislative Action

Prior Legislation	
Prior Ordinances	
Ordinance:	Ordinance date:
Prior Resolution	
Resolution:	Resolution date:
20229	August 19, 2019

Purchasing	
Does this RLA include the purchase or lease of supplies, materials, equipment or services?	Yes
Chapter 10 Justification:	Sole Source
Core 4 Tax Clearance Completed:	Not Applicable
Certificate of Foreign Corporation Received:	Not Applicable
Have all required attachments been included in this RLA?	Yes

Compliance	
Certificate of Compliance	
In Compliance	
Minority, Women and Veteran Owned Business Program	
Goals Not Applicable for following reason: Sole Source	
MBE: .00%	
WBE: .00%	
VBE: .00%	
Prevailing Wage	
Not Applicable	

Fiscal Information
• Funds sufficient for this appropriation and/or transfer are available from the source indicated on the budget information tab.

Request for Legislative Action

Submitted by Finance requestor: Craig Reich on 9/20/2023. Comments:

Approved by Department Approver Lisa Honn on 9/21/2023 2:52:26 PM. Comments: Approving at Bob's request due to technical issue.

Approved by Purchasing Office Approver Barbara J. Casamento on 9/21/2023 3:12:11 PM. Comments:

Approved by Compliance Office Approver Ikeela Alford on 9/21/2023 3:48:22 PM. Comments:

Returned for more information by Budget Office Approver Mark Lang on 9/22/2023 2:05:35 PM. Comments: The total amount for this legislation needs to be input on the top line of the Budget Info tab.

Submitted by Requestor Craig A. Reich on 9/22/2023 2:10:39 PM. Comments: Entered amount in budget line.

Approved by Department Approver Lisa Honn on 9/22/2023 3:31:51 PM. Comments: Approving for Bob Crutsinger due to technical issue.

Approved by Purchasing Office Approver Barbara J. Casamento on 9/25/2023 10:47:17 AM. Comments:

Approved by Compliance Office Approver Ikeela Alford on 9/25/2023 12:37:32 PM. Comments:

Approved by Budget Office Approver David B. Moyer on 9/26/2023 11:20:11 AM. Comments:

Approved by Executive Office Approver Troy Schulte on 9/26/2023 12:14:32 PM. Comments:

Returned for more information by Counselor's Office Approver Theresa E. Bullington on 10/3/2023 1:56:46 PM. Comments: Returning for budget line adjustment

Submitted by Requestor Craig A. Reich on 10/3/2023 2:10:43 PM. Comments: Budget line adjusted per Parks request.

Approved by Department Approver Bob Crutsinger on 10/3/2023 4:13:44 PM. Comments:

Approved by Purchasing Office Approver Barbara J. Casamento on 10/3/2023 4:30:06 PM. Comments:

Approved by Compliance Office Approver Ikeela Alford on 10/4/2023 10:25:12 AM. Comments:

Fiscal Note:

This expenditure was included in the Annual Budget.

PC# _____

Date: September 25, 2023

RES # 21429

eRLA ID #: 1091

Org Code/Description		Object Code/Description		Not to Exceed
004	**Special Road & Bridge Fund**			
1507	Special Projects in Public Works	56080	Other Professional Services	$ 53,265
003	**Park fund**			
1608	Construction Services	58060	Other Improvements	26,800
				$ 80,065

APPROVED
By David Moyer at 1:31 pm, Sep 25, 2023

Budget Office

JACKSON COUNTY
Parks + Rec

22807 Woods Chapel Road
Blue Springs, Missouri 64015
MakeYourDayHere.com

Michele Newman, Director
(816) 503-4800
Fax: (816) 795-1234

MEMORANDUM

TO: Barbara Casamento, Purchasing Administrator

FROM: John Johnson, Superintendent, Park Operations

DATE: May 31, 2023

SUBJECT: Infrastructure Management Services (IMS)

Parks + Rec, in collaboration with Public Works, requests the use of IMS to perform pavement condition assessment for selected hard surface drives, parking lots and Park roads within the 21,000 acre Park system.

Public Works has used this vendor to assess and provide data for County roads in the past. Parks + Rec has budgeted $26,800 to have this same service initiated for Park roads so that the assessment of all roads is being consistently evaluated by one entity. The data from the assessment will be used to guide allocation of existing resources as well as future budget requests for repair, maintenance and replacement of Park road sections, parking lots and drives.

The use of IMS to professionally evaluate Park hard surface roads, selected parking lots and drives, will replace a visual inspection conducted by Park associates.

Please advise if you have questions or need additional information.

Thank you.

JACKSON COUNTY
Public Works Department

Jackson County Technology Center
303 West Walnut Street
Independence, Missouri 64050
jacksongov.org

(816) 881-4530
Fax: (816) 881-4448

MEMORANDUM

From: Brian Gaddie, P.E, Director of Public Works

To: Barbara Casamento, Purchasing Administrator

Date: February 22, 2023

Subject: Infrastructure Management Services (IMS) Sole Source Request

Barbara,

This memorandum is being prepared and submitted to request the use of IMS as a sole source vendor for pavement condition assessment. In 2019, IMS was selected and used to provide a condition assessment, provide software, and train county personnel. We need to have this service provided again in 2023. The software and program are in place. We will need the data collected, data input, reports ran, and additional training. This software is unique to IMS so any other vendor would have issues working with it and training county personnel on it. Each vendor usually has their own software.

We therefore request that IMS be designated as a sole source Term and Supply Vendor for this upcoming work. The Public Works department has budgeted $75,000 in 2023 for this work.

Your consideration in this matter is greatly appreciated.

Quotation for Professional Services

IMS Infrastructure Management Services
8380 S. Kyrene Ave. Ste. 101. Tempe, AZ 85284
Phone: (480) 839-4347 Fax: (480) 839-4348
www.imsanalysis.com

To:	John L. Johnson, Park Operations	**Date:**	April 11, 2023
From:	Jim Tourek, Client Services Manager	**Project:**	Jackson County, MO
Subject:	2023 Park Roads & Parking Lot Assessment	**Project No.:**	N/A

Thank you for taking the time to review the park roads and parking lot data collection and analysis services offered by IMS Infrastructure Management Services. Our firm excels in pavement and asset management solutions including in-depth parking lot condition surveys services. To ensure adequate coverage across the network, the LCMS-2 RST (shown to the left) will survey each of the county's 31 centerline miles of parks' roadway in one direction, resulting in a survey mileage of **31 miles**. This will also be used on as many parking lots (large enough to accommodate). IMS is also proposing to utilize our Sidewalk Surface Tester "SST" (shown to the right) for the inventory of any smaller parking lots condition data and will conduct an analysis for maintenance recommendations. Our approach will be to collect data not only in through-travel area but in the parking stall areas. As discussed with Park staff, **this will require a coordinated effort and allowing for some lead time to schedule accordingly**. While the LCMS-2 equipped van collects all data in accordance with the U.S. Army Corps of Engineers data protocols, commonly referred to as ASTM D6433, the SST will be a modified-PCI based on visual assessments in the field and from imagery collected.

The SST is a purpose-built field data collection unit designed primarily for surveying municipal sidewalks, rights-of-way, and parking lots. The SST is equipped with the following:

- Front and rear strobe lights and safety signage, plus a fire extinguisher, air pump, and tool kit.
- E-Prance HD Camera with remote on/off.
- Toughbook computer complete with touch screen and GPS.
- Tilt and grade meters.
- 6" and 24" digital levels plus a 32" obstruction baton.
- On-board 450W power inverter for cell phones, notebook, HD cameras and radio.
- Tow vehicle and trailer.

Based on the City's parking lot spreadsheet, the RST & SST will traverse approximately **15 Parking Lots (as highlighted by Parks Operations) and encompassing over 135,500 square yards (SY)** of pavement throughout the city.

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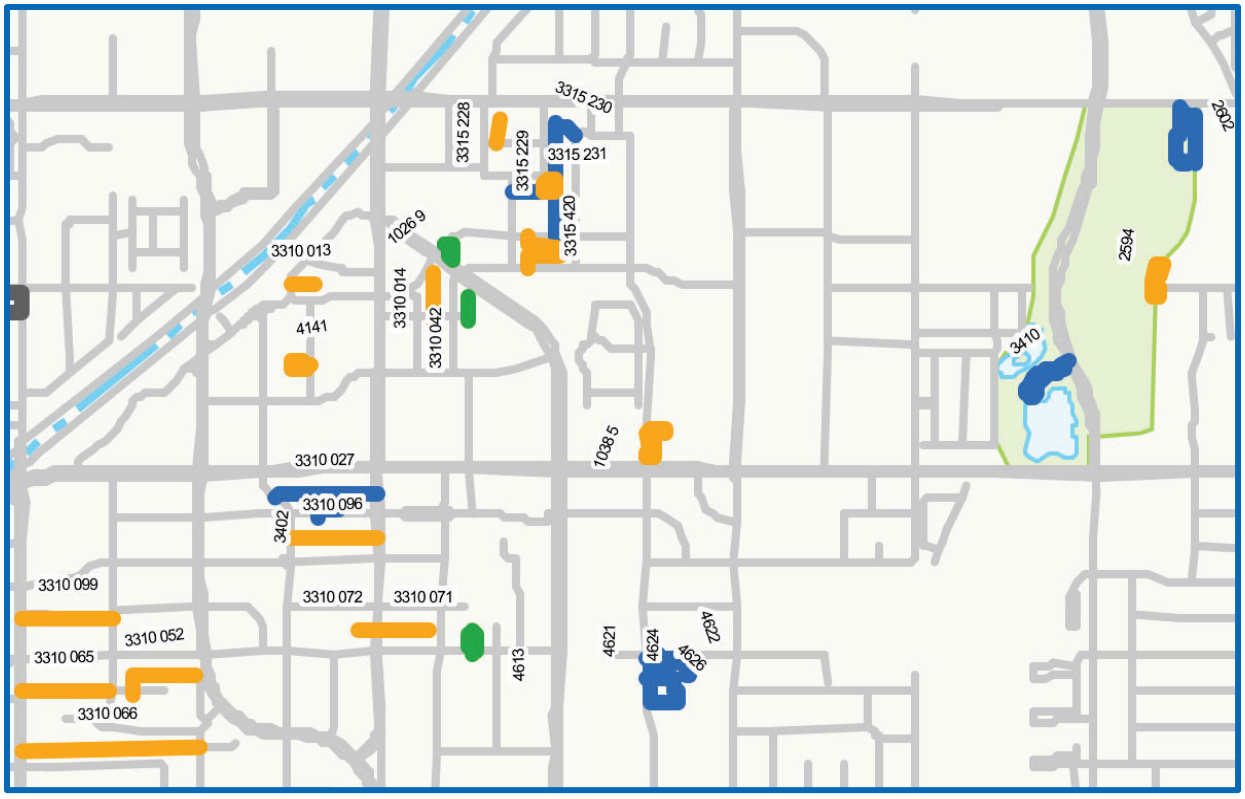
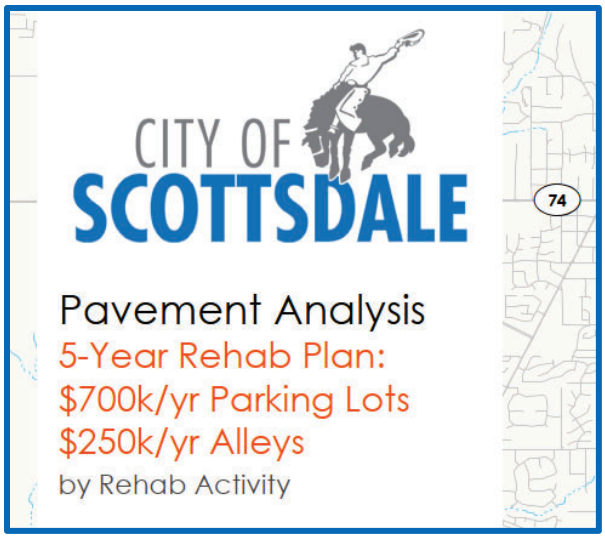
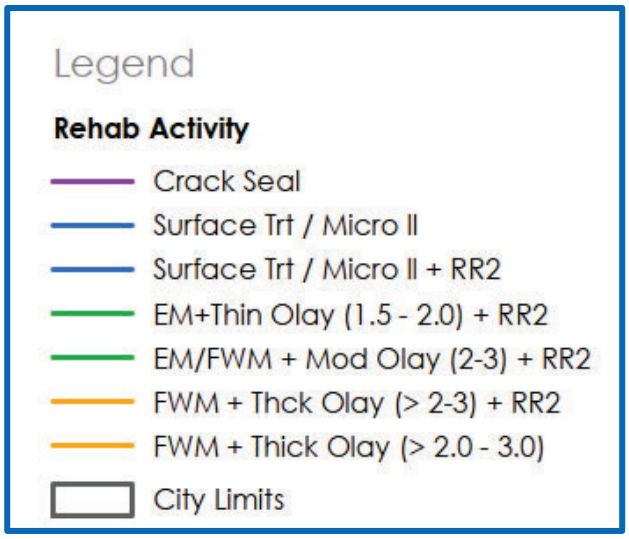
An Excerpt from the IMS 2022 Parking Lots and Roads Summary Reporting for Scottsdale, AZ:

"The City of Scottsdale is currently responsible for approximately 23 centerline miles of alley pavements with an overall PCI of 42 and a backlog of 61%. Approximately 36 centerline miles of the parking lot pavements (155 total lots) have an overall PCI of 55 with a backlog of only 6%. ***Table 3*** *presents the City's inventory and pavement condition of the alley and parking lot network. Detailed information for each management section is available in* ***Appendix A****."*







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Jackson County, MO - IMS 2023 IMS Pavement Management System Update

Park Roads & Parking Lots

10	Pavement Assessment of **Park Roads** (~ 31 Miles, All 1-pass: Mob. Incl. in Streets)	1.0	DA	$4,750.00	$4,750.00
	a. Pavement Analysis of Park Roads (List as a Unique Functional Classification)				
11	Pavement Assessment of **Park Parking Lots** (Includes Stalls & Excludes Shelter Lots; County to Coordinate Closures)				
	a. GIS Clean-up of Parking Lots & Park Roads	8	HR	$125.00	$1,000.00
	b. Parking Lot Network Referencing & NOMAD/Survey Development	1	LS	$2,500.00	$2,500.00
	c. 12 Parking Lots Surveys (RST: 129.19k Sq. Yards) - Excludes Shelter Lots	135,532	SY	$0.100	$13,553.00
	d. Collection of Digital Images @ 10' Intervals (Center-Front View)	15	EA	$20.00	$300.00
	e. Parking Lots Inventory, Attribute, & Geodatabase Development	15	EA	$45.00	$675.00
	f. Parking Lots Analysis & Budget Development	1	LS	$2,000.00	$2,000.00
	g. Summary Report	1	LS	$250.00	$250.00
	h. Project Management	1	LS	$1,772.00	$1,772.00

Park Roads/ Parking Lots Project Sub-Total:	**$26,800.00**

Combined Streets & Parks Project Total:	**$80,265.00**

Thank you for considering IMS a viable solution to your pavement management needs. We'll strive to remain an asset and extension of the County of Jackson staff and team. If any questions arise please do not hesitate to call or e-mail. Our entire staff is here to provide support and we can be reached at (480) 462-4030 or jtourek@imsanalysis.com

IMS Infrastructure Management Services

Jim Tourek
West Region Manager of Client Services

Quotation for Professional Services

IMS Infrastructure Management Services
8380 S. Kyrene Ave. Ste. 101. Tempe, AZ 85284
Phone: (480) 839-4347 Fax: (480) 839-4348
www.imsanalysis.com

To:	Earl Newill, Deputy Director of Public Works	**Date:**	April 11, 2023
From:	Jim Tourek, Client Services Manager	**Project:**	Jackson County, MO
Subject:	2023 Pavement Data Collection	**Project No.:**	N/A

Thank you for taking the time to review the pavement and asset 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 services.

As we understand from our 2019 project, the County of Jackson currently maintains approximately 208 centerline miles of roadway; of those 52 centerline miles have 4+ lanes. To ensure adequate coverage across the network, the LCMS-2 RST (shown here) will survey each 4+ lane of roadway in each direction and each remaining road in one direction, resulting in a survey mileage of approximately **260 miles**. IMS has performed objective pavement data collection for similar agencies such as *Branson, Bridgeton, Camden County, Creve Coeur, Grand Valley, Independence,* ***Jackson County****, Joplin, Kirksville, Ozark, MO; Wyandotte County, KS, and many others in the Region*.

IMS collects all data in accordance with the U.S. Army Corps of Engineers data protocols, commonly referred to as ASTM D6433. In addition, we deliver all data in industry standard formats such as Excel, Access, Geodatabases, shape files, and even Google Earth KMZ files. While IMS can implement and load data into any software application the County chooses, IMS has also engineered a simple to use spreadsheet tool called **Easy Street Analysis (ESA)**. We use this tool to incorporate cost benefit activities. We are confident that this tool can serve as an excellent pavement management tool for the County.

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.

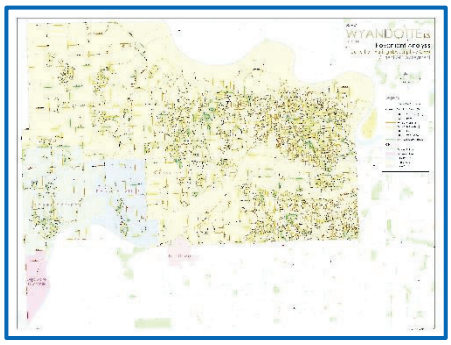
Service and quality are paramount to success – the right blend of technically correct data, condition rating, and reporting will provide the agency with a long-term, stable solution. Service to the client remains our top priority.

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.

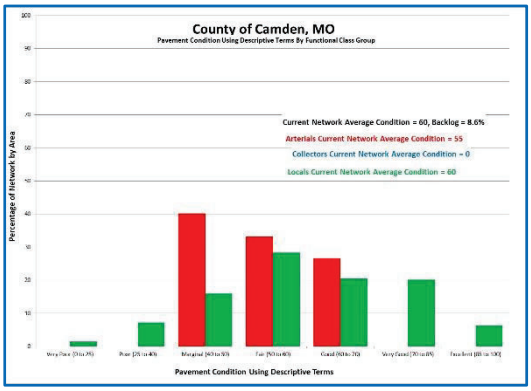
Data Collection

IMS is unique to the industry, as an objective and repeatable data collection effort will be completed. The LCMS-2 RST will be used to perform a surface condition assessment of all County streets. Instead of using the subjective feet on ground or windshield sampling method, all data will be collected continuously and recorded in 15-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 County 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 County's GIS environment and the pavement management data to enable the County to display and generate color-coded maps based upon existing pavement conditions, street rehabilitation plans or most of the data in the pavement management program. An output of a 5-year maintenance prioritization program is illustrated in the above image.

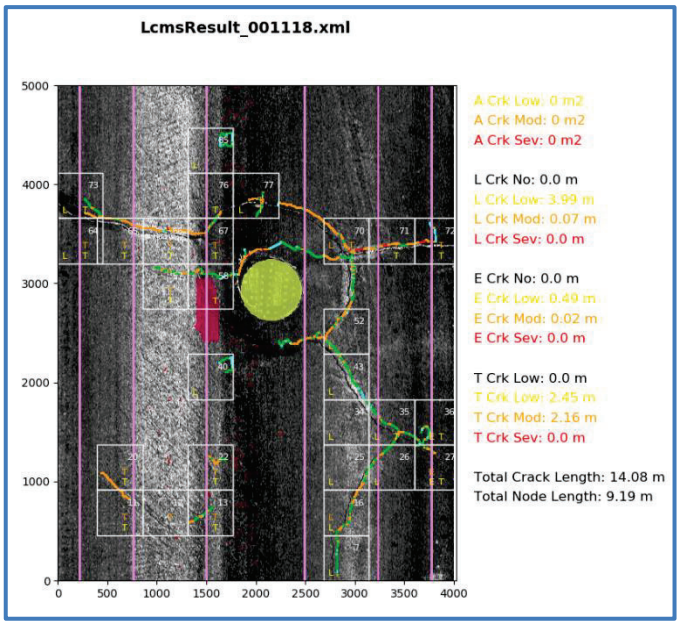


Digital Imagery & ROW Asset Inventories

The LCMS2 RST utilizes up to four GPS-referenced HD camera views (4112x3008) for our QA/ QC program, ROW asset inventory development, virtual drives, and/or other supplemental image deliverables. For the County of Jackson, IMS will utilize two HD cameras that will be proofed out prior to data collection and a single forward view can be processed as a deliverable to the County. IMS can then utilize the HD imagery collected by the LCMS-2 RST to inventory many Right of Way assets that the County maintains.

Objective Distress Identification & Quantification (ASTM D6433)

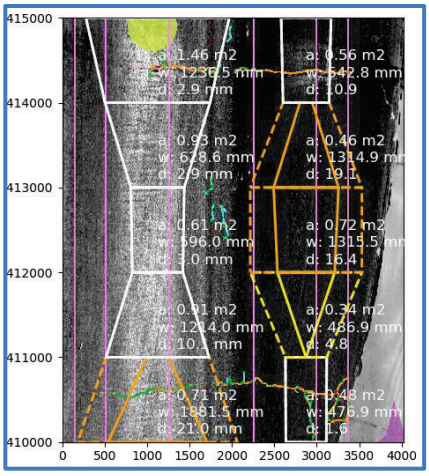
The IMS Laser Crack Measurement System (LCMS2) is one of the most technologically advanced devices available for pavement performance assessments. The 2-sensor array completes a 3D millimeter-level scanning of the pavement surfaces that pass below the laser array. With a high-speed 1-millimeter resolution, this means the LCMS2 device deploys a continuous scan of laser points (approximately 3,657) across a mere 12 feet of pavement, making it one of the highest resolution pavement laser scanners available. The onboard processing software further amplifies its capabilities by analyzing pavement elevation (range and intensity) and automatically identifying cracking, rutting, and roughness in the form of IRI, potholes, and bleeding.



While any engineering firm could deploy the LCMS2 equipment for data collection, processing the information for distress quantification requires a complete understanding of automated technologies, GIS mapping, and distress measurement protocols found in standards such as ASTM D6433. Simply reviewing the LCMS cracking vectors (colored cracks) with the human eye dilutes the objectivity of the equipment.

IMS engineers and technologists have developed a computerized processing application that automatically applies an 18”x18” grid to the LCMS downward images (FIS files) and uses pre-programmed geometric algorithms to classify and quantity distresses by type. These automated processing routines result in an unparalleled level of objectivity and efficiency in distress pattern recognition analysis. The image above illustrates the quantity of several distresses as well as the presence of a manhole, which was automatically scrubbed from the dataset.

In addition to the auto-quantification and classification of ASTM D6433 distresses, the LCMS2 device also operates as a Class I profile device that collects longitudinal profile (in the form of the International Roughness Index) and transverse profile (rutting) using **advanced 3D profile laser scanning technology**. The system is not subject to vehicle wander like other automated technologies, and it compensates for variation in driver ability. The adjacent images show the processing software’s ability to calculate rutting width and depth following the AASHTO Taut Wire methodology. The solid white lines indicate there was no rutting in the left wheel path and that rutting was detected and measured in the right wheel path. Filters can also be applied to account for rehabilitation activity overlap, which can be as much as a ¼ inch depending on the application.



Cracking, Faulting, Texture, Bleeding, & Potholes – The LCMS2 allows IMS to conduct an objective distress survey, thus increasing the accuracy of an otherwise subjective manual survey. High-speed lasers and an onboard processing computer accurately measure the surface profile of the road. Included in this profile are all cracks and faults as small as 1/8" (2 mm) wide that pass beneath the lasers. Processing software then reduces and filters this information to determine the *total number of cracks, crack width/depth, as well as the crack interval*, plus faulting information. From this information, quantified crack data can be determined at both the sample and summary intervals. Crack identification includes all cracking such as alligator, transverse, longitudinal, map, and edge cracking (where applicable).

The LCMS2 device is also capable of automatically collecting, identifying, and reporting supplemental distresses such as bleeding and potholes on asphalt roadways.

Rutting – The LCMS device collects continuous 3D transverse profile data at 1-millimeter resolution at highway speed. This configuration is far superior to other types of vehicles that utilize three lasers or sonic transducers to calculate "relative rutting." Even five sensor units are sensitive to driver error since it is essential in that case that the driver keep the data collection vehicle's wheel exactly in the rutted wheel tracks (assuming that they fit).

The Taut Wire method is used to calculate the rut depth in both the right and left wheel track on a continuous basis. Either the right or deeper of the two-wheel path ruts may be used for rut depth calculations with the average rut depth for that wheel path reported for each section. *Rut depth results, quantified by 3-4 severity thresholds (with break points at user-defined levels such as 0.25, 0.50 and 0.65 inches) and percentage of section will be provided for every segment.*

Roughness – International Roughness Index (IRI) data is calculated in real time from continuous longitudinal profile data collected by the LCMS2's 3D profile device. To determine the road profile, data is simultaneously obtained from three devices: a pulse transducer-based distance-measuring instrument (DMI), high-speed 3D laser sensors operating at 112 MHz, and an accelerometer in conformance with ASTM E 950. The LCMS2 unit conforms to a Class I profiling device, and it can also "pause" over non-valid roadway sections such as localized maintenance activities, railroad crossings, or brick inlays and not affect the overall IRI value.

Distortions, Raveling, Patching, & Other Custom Attributes – While the LCMS automatically collects the majority of ASTM D6433 distresses, the LCMS platform can be configured to collect the remaining distresses (raveling, distortions, and patching) using the integrated touchscreen. By means of a touchscreen-based tablet computer, highly trained IMS technicians input changes in observed distress severities and extents or identify specific roadway assets or attributes such as curb reveal or lip of gutter information. The touchscreen is integrated into the data flow through time code, GPS, DMI distance and inventory control. The data is then post-processed in the office to generate extent quantities for each observed distress severity level throughout every surveyed road section.

PCI Development, Client Review Spreadsheet Deliverable

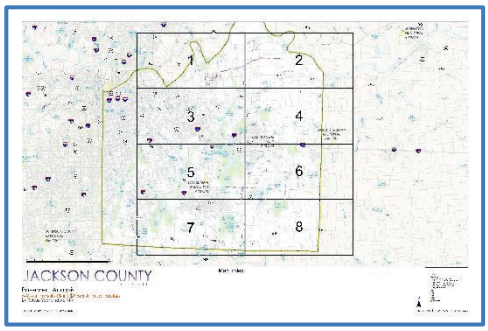
Immediately following the completion of the field survey's IMS will begin processing the pavement distress severity and extent scores in an effort to develop a Pavement Condition Index (PCI) for each roadway segment. The condition results are analyzed by a team of IMS engineers, who then develop the County's multi-year pavement management plan. This section provides a brief summary of the functionality of the IMS pavement PCI spreadsheet in order to emphasize our detail to an accurate PCI.

GIS Integration & Mapping

The role of GIS in asset management cannot be overstated. It is a powerful tool that provides the ability to handle and present vast amounts of data in an efficient manner. Not only does GIS allow an agency to visually plot textural data, it also establishes an easy access portal to the data through an efficient integration with many 3rd party asset management applications.

IMS kicks off every project by completing a brief review of the agency's GIS environment to assess suitability for network referencing, survey map preparation, and pavement management purposes. Our team will consume the County's existing GIS files and use the GIS as the basis for developing the network segmentation on a logical block-to-block or intersection-to-intersection basis. If the County retains an existing pavement inventory linked to an asset management system, no changes will be made unless approved by County staff.

The data collected by IMS is linked to the existing GIS environment and is supplied as a personal geodatabase, spatial database engine, Auto CAD files, or a series of shape files. IMS collects XY coordinates for all data elements using GPS technology coupled with inertial navigation and integrates with most 3rd party GIS applications, including ESRI.



At a minimum, the GIS supplied by the County should have an ownership attribute, functional classifications, contiguous line work, and be in a digital format such as shape files and/or personal/file geodatabases. As a supplemental task, IMS also offers full service "GIS Clean-Up" and "Functional Class Review" activities for agencies that require additional GIS development above and beyond standard network referencing activities. IMS can also compare the existing roadway inventory within any current asset management system to the County's GIS environment. If they do not match and a one-to-one relationship is required, IMS has the team available to develop the correct referencing information. This remains an optional activity to be conducted at the discretion of County staff.

For this assignment, GIS will be used in four key areas of work:

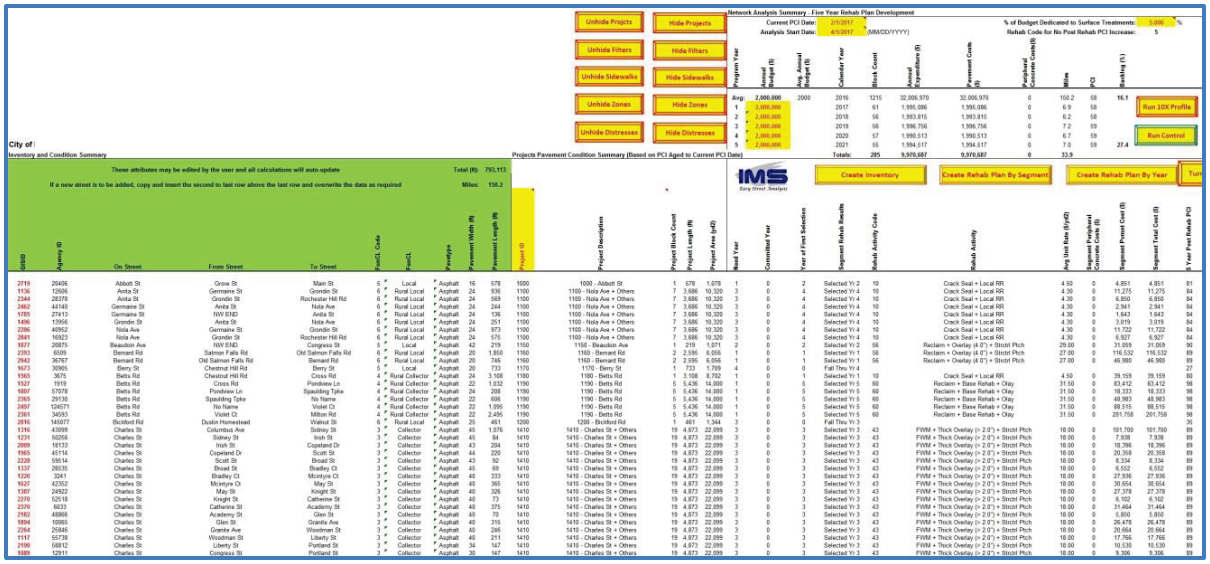
1. GIS will be used to verify the streets to be surveyed and to create the routing maps for use during the field surveys.
2. The survey productivity will be tracked through the plotting of the GPS data collected during the field surveys. This will allow IMS to review all streets that have been covered, identify anomalies in the referencing, and spot missed streets.
3. GIS will be used in processing the distress and inventory data. By plotting the data, we can QA the data and identify data exceptions in addition to proofing out the GIS.
4. Personal geodatabases, spatial database engines, shape and/or KML files, can be created for the visual presentation of condition data and analysis results.

Easy Street Analysis (ESA) Spreadsheet

While the results of the survey will certainly be documented and bound into a final report that illustrates the findings of the survey, it is imperative that County staff have access to the pavement condition and analysis results without having to become software experts. While IMS is a leading expert with most 3rd party pavement management applications as mentioned in the previous section, we have engineered a simple, and easy to use Excel spreadsheet that utilizes the core metrics of any great pavement management system such as the ability to prioritize and optimize the multi-year plans.

The Easy street Analysis (ESA) spreadsheet will be programmed to develop a multi-year maintenance and rehabilitation plan using "cost of deferral" as a rehabilitation candidate selection constraint in an effort to introduce cost-benefit techniques into the County's pavement management plan. This will allow Midlothian to provide and demonstrate the most effective use of available funds. In addition, the ESA spreadsheet will have referenced deterioration curves for each functional classification, pavement type, and even pavement strength rating. The power of having the data in such an open architecture fashion allows the County to utilize 3rd party software in the future if desired. The spreadsheet will also contain a full suite of maintenance and rehabilitation techniques, unit rates, and associated PCI resets. The parameters of the analysis (Priority Weighting Factors) can also be modified and reprioritized on the fly, as well as being able to prioritize the top ten streets needing reconstruction or major rehabilitation. This will allow the County's data to evolve with the priorities of elected officials and department staff. Programmed priority weighting factors include functional classification, pavement type, and pavement strength while actual candidate selection is based on the incremental cost of deferral.

As seen in the image below, the analysis data in the spreadsheet is supplemented with many cells highlighted in yellow. The yellow highlighted cells simply indicate that they are "HOT" and can be modified by the end user. Two of the yellow cells shown below represent the Annual Budget and the Project ID. The Annual Budget cell can be modified with a new budget and the 5-year plan will automatically re-prioritize on the fly. While IMS will have already aggregated the County's segments (intersection-to-intersection) into viable projects (multiple segments strung together to form a logical project), the user has the ability to aggregate additional segments into a project or even remove a segment from a project without having to become a software expert.



ESA Functionality: Project Completion and PCI Overrides

The spreadsheet also allows the County to refresh the 5-year plan by entering the maintenance and rehabilitation work completed. As seen in the image below, the spreadsheet is supplemented with "PCI Override" functionality. When work is completed on a particular segment, the user simply inserts the override PCI value along with a date. The spreadsheet then removes the segment from the 5-year plan and updates all referenced network PCI averages.

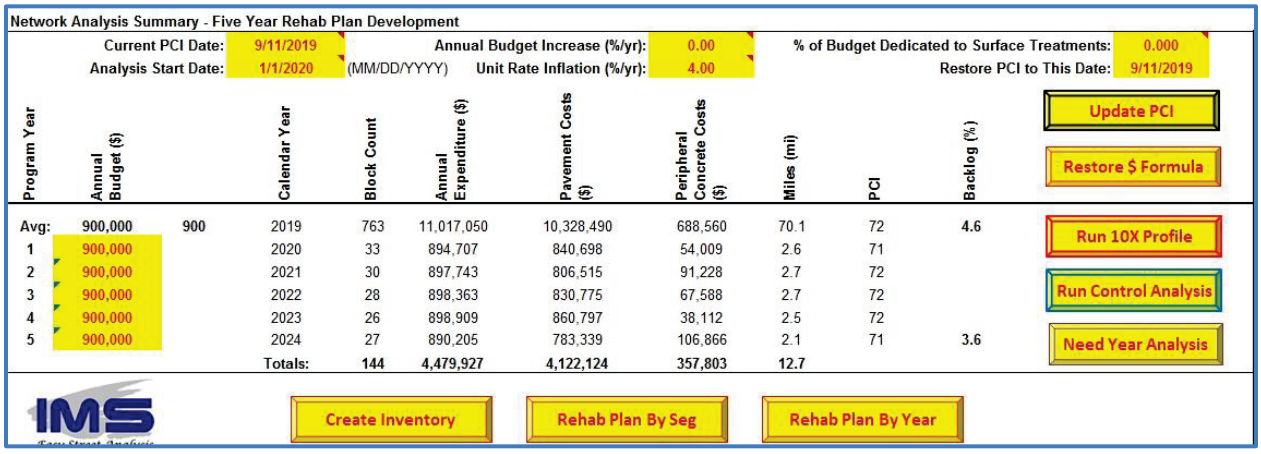
Other features of the IMS Easy Street Analysis spreadsheet are as follows:

- Red triangle tips that trigger a dialogue box explaining cell contents.
- Ability to add new road segments and attributes on the fly.
- Modifiable distress indices for Midlothian field inspections.
- Input work completed and override segment level PCI scores.
- Prioritize by neighborhoods, zones, or districts.
- Ability to modify project lengths – includes aggregating and splits.
- Commit projects and force "Must Do's" or "Must Never Do".
- Program varying annual budgets over a 5-year horizon.
- Commit a percentage of the budget to surface treatments if desired.
- Automated rehab plan prioritization and optimization.
- Macros that automatically sort and filter simple rehab and inventory lists.
- Ability to sync the spreadsheet with the Data Viewer though a .CSV file export.

While the spreadsheet is not meant to replace pavement management systems, it is an alternative for agencies that do not want to maintain the resources or staff to maintain a dedicated application. If a dedicated system is still desired, IMS will assess all other available 3rd party solutions. The ESA data integrates with GIS and is also easily exportable to be tied into PAVER, RoadManager, Lucity, Cartegraph, BeeHive, Cityworks or other software solutions.

Additional Sample Images of the ESA Interactive Spreadsheet Functionality:

Running a budget model within ESA is as easy as typing in your annual budget each year for the next 5-years. After doing so the application will automatically run the model and develop an optimized 5-year rehabilitation plan that identifies the selected rehab candidates, their year of selection, and their cost.



Program Year	Annual Budget ($)		Calendar Year	Block Count	Annual Expenditure ($)	Pavement Costs ($)	Peripheral Concrete Costs ($)	Miles (mi)	PCI	Backlog (%)
Avg:	900,000	900	2019	763	11,017,050	10,328,490	688,560	70.1	72	4.6
1	900,000		2020	33	894,707	840,698	54,009	2.6	71	
2	900,000		2021	30	897,743	806,515	91,228	2.7	72	
3	900,000		2022	28	898,363	830,775	67,588	2.7	72	
4	900,000		2023	26	898,909	860,797	38,112	2.5	72	
5	900,000		2024	27	890,205	783,339	106,866	2.1	71	3.6
			Totals:	144	4,479,927	4,122,124	357,803	12.7		

Projects are multiple segments/blocks that have been aggregated together to form a logical project within the pavement management system. While changing the limits or size of a project is often difficult in many pavement management applications, doing so in ESA is as simple as entering in a new "Project ID". Nothing more is necessary.

Projects Pavement Condition Summary (Based on PCI Aged to Current PCI Date)

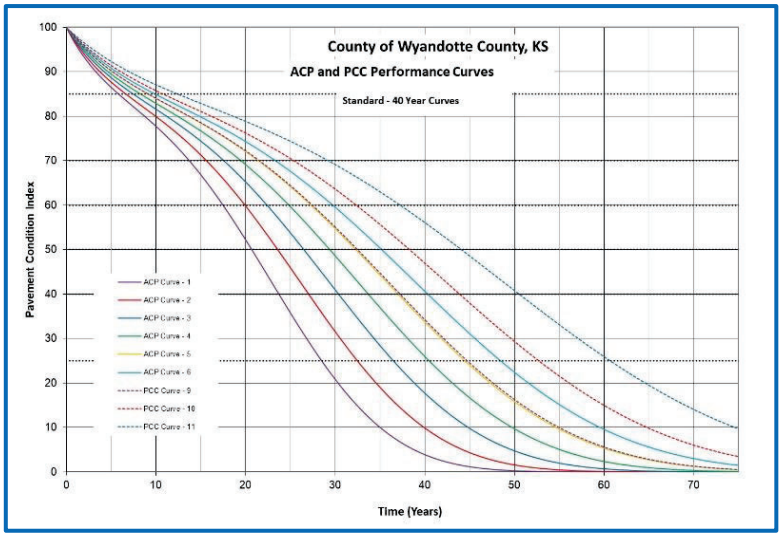
Project ID	Project Description	ject Block Count	Project Length (ft)	Project Area (yd2)	Project PCI (PCI)	Project Cndtn Rating	ject Strength Code	ject FunCl Code	ject Pavetype Code
3700	3700 - Village Rd + Others	11	4,268	15,672	83	V Good	2	3	1
1360	1360 - Highland Dr + Others	3	1,418	4,001	56	Fair	2	3	1
3440	3440 - Andover Rd + Others	5	2,680	21,801	80	V Good	2	1	2
3700	3700 - Village Rd + Others	11	4,268	15,672	83	V Good	2	3	1
1500	1500 - Minneha Ave + Others	4	1,341	5,228	80	V Good	2	2	1
3820	3820 - Westview Cir + Others	2	1,490	4,444	53	Fair	2	3	1

The ESA application is configured with the County's appropriate rehabilitation activities and represents a very comprehensive pavement management program in the form of an Excel Spreadsheet. A full demo of the ESA application can be scheduled with County staff if desired.

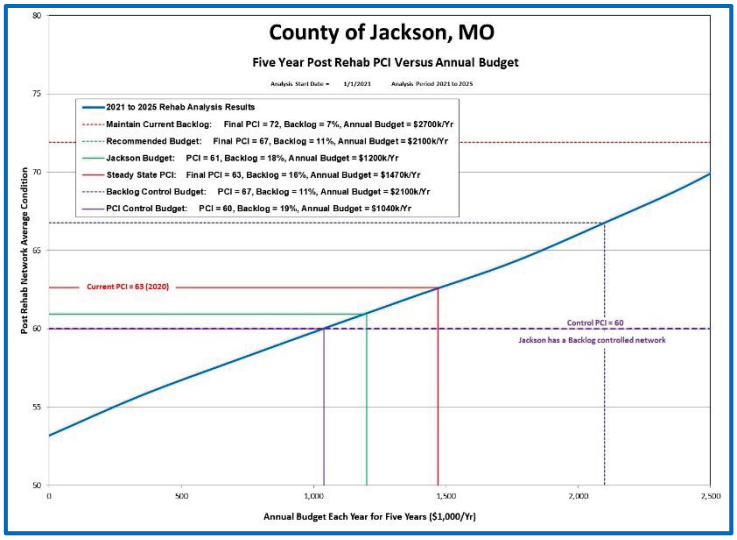
In addition to the yearly programs, the net impact each budget scenario has on the expected condition of the road network over time can be determined. This budget impact can be illustrated both in terms of the yearly increase or decrease in the average network PCI score, PCI distribution, or % Backlog of roads that were not selected by the budgets. IMS converts the difficult to understand FHWA and ASTM D6433 data to a 0-10 distress rating scale with distress weighted factors (DWF), where DWF = {Area under D6433 deduct curves/3000}.

Modeling and Performance Curves

With an IMS analysis, you can forecast various budget scenarios to help you determine your ideal maintenance and rehabilitation schedule. The IMS approach will help you decide what rehab activities should be performed, when and where to perform them, and an ideal budget for your system to maintain it at a specific level of service.



IMS engineers use pavement deterioration models that can be customized to reflect the climatic conditions and structural characteristics of the Midlothian road network. As a result, performance curves can be developed on factors such as functional class, pavement type and sub-grade strength.



Rehabilitation Analysis

An unlimited number of pavement maintenance and rehabilitation strategies can be defined within our system. An analysis is then run, incorporating the performance curves, set points, filter criteria and rehab alternatives to identify the overall need in terms of rehab strategies and costs for the County's road network, for today as well as year on year for the next 5 to 10 years.

The IMS approach allows you to input any number of "what if" budget scenarios and produce prioritized yearly rehab programs based on those funding levels over a 5-year analysis period. Typical budget scenarios include Budget $/Year, Unlimited Budget $, "Do Nothing" Budget, and a Target PCI Budget.

What is included in an IMS analysis & report?

- *Street ownership and inventory/attribute report*
- *Present condition ranking* – detailed and summary condition data including; Good/Fair/Poor, Load Associated Distresses (LAD), Non-LAD, and Project reviews 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 not performing roadway rehabilitation projects.
- *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 over 3, 5, or 10 years.
- *PCI & funding levels* – what funding will be necessary to maintain a PCI of 75, 80, & 85.
- *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. Up to 10 budget scenarios will be run.
- *Integration of capital projects and Master Plans* – ongoing and proposed projects that affect roadway rehabilitation planning will be incorporated into the analysis.
- *Draft multi-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.

An IMS pavement management program is comprehensive, from the data collection process to the implementation of software, and ensures that the Agency will have the capability to utilize the pavement condition data for the implementation of real-world maintenance and construction programs.

2023 Proposed Project Schedule (8-Months):

- Contract Executed/ P.O.: April 2023
- GIS Acquisition/ Clean-up & Validation: April 2023
- Review Map Iterations & Approval: April 2023
- LCMS-2 RST Pavement Survey: May 2023
- QA/ QC for Data Collected: June – August 2023
- Pavement Condition Data/ Client Review: September 2023
- "ESA" Analysis with Client Input: October 2023
- Final Analysis & Report: November 2023
    - ➢ Additional Optional Deliverables: ROW Assets, Story Maps: November 2023

2023 Pavement Data Collection Project – Fee Schedule

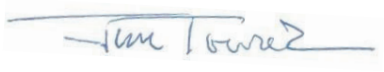
The detailed budget presented on the following page is based on the IMS work plan and deliverables. The detailed budget presented below is based on the IMS work plan and deliverables. "T-Mi.", or test miles (aka survey miles) are synonymous and are defined as miles driven by the IMS van equipped with LCMS-2 tech.

Jackson County, MO - IMS 2023 IMS Pavement Management System Update

Task	Activity	Quant	Units	Unit Rate	Total
	Project Initiation				
1	Project Initiation & Set-Up	1	LS	$3,000.00	$3,000.00
2	Network Referencing & GIS Linkage	260	T-Mi	$8.00	$2,080.00
3	Network Inventory Checks & Survey Map Development	260	T-Mi	$4.00	$1,040.00
	Field Surveys				
4	LCMS-2 RST Mobilization/Calibration	1	LS	$3,000.00	$3,000.00
5	LCMS-2 RST Field Data Collection **(2-pass All Art. & Coll., 1-pass Locals)**	260	T-Mi	$100.00	$26,000.00
6	Collection of HD Digital Images, 15' Intervals **(Front View)**	260	T-Mi	$12.00	$3,120.00
	Data Management				
7	Pavement Surface Condition Data QA/QC, Processing, & Format	260	T-Mi	$20.00	$5,200.00
8	Final Pavement Analysis and Budget Models & Final Written Report	1	LS	$7,500.00	$7,500.00
	a. "ESA - Easy Street Analysis" Pavement Management Spreadsheet Software		**Included in Base Activities**		
	b. Customizable Prioritization & Cost-Benefit Analysis		**Included in Base Activities**		
	c. Unlimited Access - Training Library		**Included in Base Activities**		
	d. Online ESA Spreadsheet Training via Teams		**Included in Base Activities**		
9	Project Management	1	LS	$2,525.00	$2,525.00
				Project Total:	**$53,465.00**

Thank you for considering IMS as a viable solution to your pavement management needs. We will strive to become an asset and extension of the County of Jackson staff and team. If any questions arise, please do not hesitate to contact me at (480) 462-4030 or jtourek@imsanalysis.com.

IMS Infrastructure Management Services



Jim Tourek, West Region Manager of Client Services

Page 11-13 highlight IMS optional services:

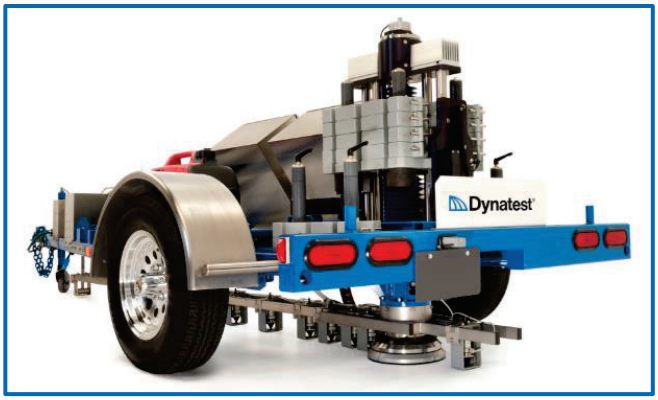
Jackson County, MO - IMS 2023 IMS Pavement Management System Update

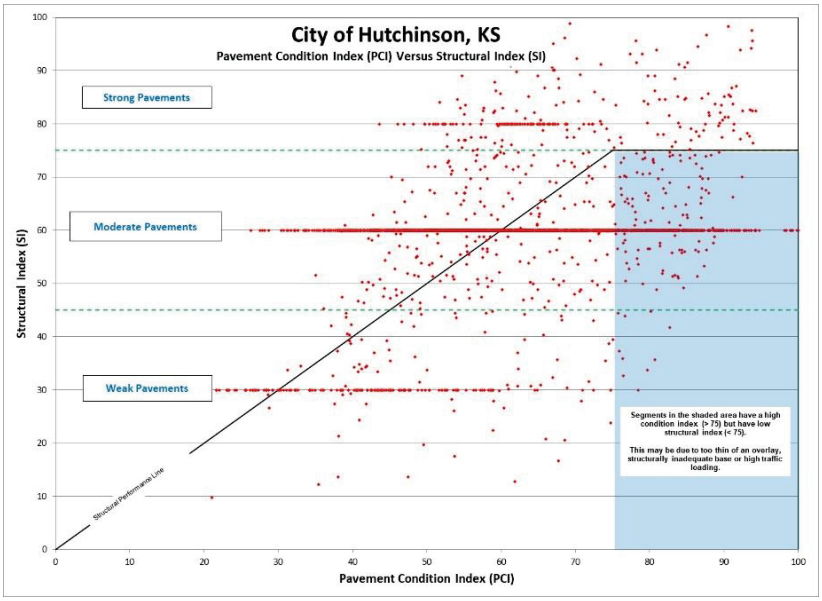
	Optional Activities				
10	Multiple Mob. & Pavement Assessment of **Park Roads** **(~ 50 Miles, All 1-pass)**	2	DA	$4,750.00	$9,500.00
11	GIS Sync of ESA Spreadsheet (Needs Constant 1-to-1 Relationship)	1	LS	$9,000.00	$9,000.00
12	Board of Co. Commissioners Presentation **(In-Person PowerPoint by IMS Staff)**	1	LS	$3,500.00	$3,500.00
13	Board of Co. Commissioners Presentation **(Prep. PPT/ Presented by IMS Staff via Teams)**	1	LS	$2,250.00	$2,250.00
14	FastFWD Mobilization **(2-pass 4-Lanes & Greater ONLY)**	1	LS	$3,000.00	$3,000.00
	a. FastFWD Deflection Testing	104	T-Mi	$142.00	$14,768.00
	b. Traffic Control/Deflection Testing **(County to provide; IMS Est. 0-24 Hrs.)**	0	HR	$135.00	$0.00
15	Right of Way Assets **(GPS & Camera Config.: Select Once w/Any Asset Below)**	260	T-Mi	$8.00	$2,080.00
	a. Sign & Support Database Development	260	T-Mi	$100.00	$26,000.00
	b. Pavement Markings & Striping Database Development	260	T-Mi	$60.00	$15,600.00
	c. Sidewalk Database Development	260	T-Ml	$50.00	$13,000.00
	d. ADA Ramp & Compliance Survey	260	T-Mi	$60.00	$15,600.00
	e. Curb & Gutter Database Development	260	T-Mi	$50.00	$13,000.00
	f. Traffic Signals/ Flashers. Controllers Database Development	260	T-Mi	$40.00	$10,400.00
	g. Street Lights Database Development	260	T-Mi	$70.00	$18,200.00
	h. Drop Inlets Database Development	260	T-Mi	$60.00	$15,600.00
	i. Drivepads Database Development	260	T-Mi	$120.00	$31,200.00
	j. Bridges Database Development	260	T-Mi	$20.00	$5,200.00
	k. Street Furniture Database Development	260	T-Mi	$16.00	$4,160.00
	l. Cattle Guards Database Development	260	T-Mi	$30.00	$7,800.00
	m. Speed Humps Database Development	260	T-Mi	$20.00	$5,200.00
	n. Guardrails & Roadside Pedestrian Fence Database Development	260	T-Mi	$40.00	$10,400.00
	o. Catch Basins/ Drainage Inlets *from Master Drainage Plan*	1	LS	**TBD**	
	p. 3% Discount for >2 New ROW Assets Selected **(If >5, 6% Discount)**	260	T-Mi	**TBD**	
16	IMS Web-Story Map of City's Pavement Condition **(Ext. Portal or for Internal Staff)**	1	EA	$7,500.00	$7,500.00
	a. Years 2 & 3 Annual Updates of Rehabs; Update	2	EA	$2,000.00	$4,000.00
17	Additional or Specialty Maps for Reporting **(beyond typical 2 sets)**	1	EA	$175.00	$175.00
18	Additional Onsite Meetings	1	EA	$3,500.00	$3,500.00
19	Additional Hard Copies of the Final Report **(Above Typical 2 Sets Included)**	1	EA	$200.00	$200.00
20	GIS Clean-Up Services	6	HR	$175.00	$1,050.00
21	Functional Classification Review	260	T-Mi	$10.00	$2,600.00

Optional Sub-Surface Distress Investigations

Subsurface distress investigations are a valuable tool to assess the sub-grade condition of a roadway. If added to the scope, IMS can integrate the Structural Index (SI) as a component of each roadways final PCI score. To assess the subgrade strength of a roadway, a FastFWD Device would be utilized for Asphalt and Concrete roadways in accordance with **ASTM** standards.

While deflection testing can be conducted on all roadways, generally IMS recommends that network-level testing be completed on the high traffic routes such as arterials and collectors. Deflection testing is typically completed at least once in each direction on every street segment (every 300 - 500 feet) along the outside lanes of the roadway. Testing shall be altered to an inside lane when it appears to be in a worse condition than the outside lane of the segment based on site observations. IMS will record the readings of a series of geophones for inclusion in the overall pavement condition rating. These readings will then be used to determine the pavement strength, load transfer capabilities, and identify properties of the base and sub-grade.





Upon completion of the deflection survey a structural analysis is performed. FastFWDs apply a known load to the pavement and measure the pavements response to the load. The structural adequacy of a road is expressed as a 0 to 100 score with several key ranges: roadways with a Structural Index greater than 75 are deemed to be structurally adequate for the loading and may be treated with lightweight surface treatments or thin overlays. Those between 50 and 75 typically reflect roads that require additional pavement thickness; and scores below 50 typically require reconstruction and increased base and pavement thickness.

The adjacent graph presents a sample structural adequacy plot of a recent client's roadway network against its average pavement condition. The diagonal blue line separates roadways that are performing above expectations (above the line), from those that are not, (below the line). The small number of roadways falling below the diagonal line indicates this particular County, Branson, Missouri, has a low percentage of roadways that are structurally inadequate for their design load. This is typically the result of insufficient base and structural materials during the original construction, or the application of overlays that were too thin during the lifetime of the roadway.

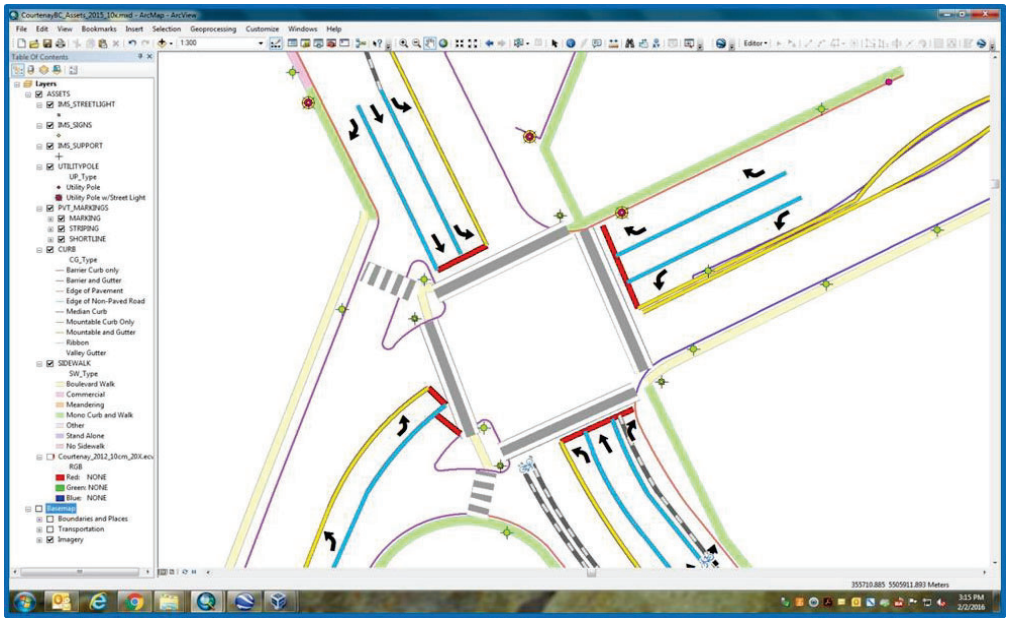
Optional Right-of-Way Asset Inventories

The IMS Laser RST uses high-end GPS coordinate data and digital cameras positioned so that all assets/attributes requiring data capture are visible with the front, side, and rear cameras. For the County of Murphy, IMS has the capability to collect information for sidewalks, ADA Ramps, Curbs/Gutters and other assets for location verification and condition assessment. IMS can also complete ADA compliance surveys on sidewalks, trails and paths utilizing the Sidewalk Surface Tester (SST). *The right-of-way asset inventories are supplemented with air photos and GIS to ensure positional accuracy.*

The IMS technology is an open architecture system that allows virtually any type of asset to be defined for collection of location, attribute, and condition data. Once an asset 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. IMS confirms the feature attributes to be collected with the client.

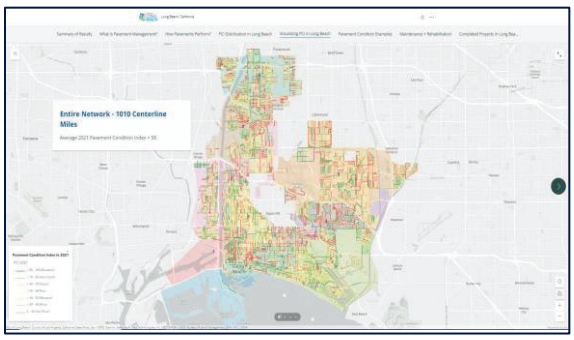
The images and GPS data are merged on a frame-by-frame basis. The images are then post-processed using a specialty piece of GIS and image viewing software. Using RST imagery, the existing centerline GIS, and aerial photography, IMS spatially plots each right-of-way asset in its real-world location.

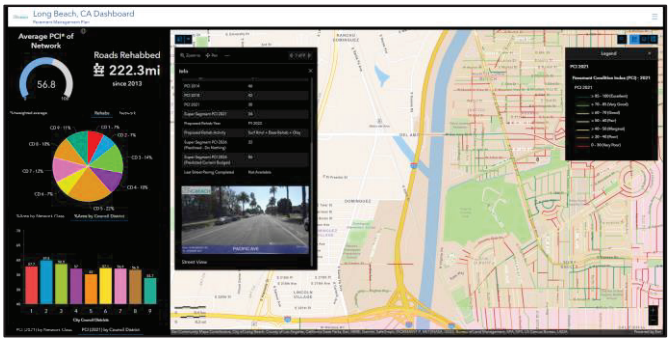
Prior to commencing each asset inventory, a document called the **Master Asset List** (MAL) will be developed, using each applicable exhibit as a starting point. The MAL defines what assets or inventory items are to be logged and what attributes will be extracted. The MAL also defines the methodology for condition rating each asset. Essentially the MAL is the direct equivalent of a "data dictionary" as it sets the rules for right-of-way asset data collection. The GIS screenshot below depicts an IMS asset inventory of sidewalks, ADA ramps, pavement striping and markings, curb & gutter and signs.



Optional Story Map or Dashboard

IMS has a team of Esri GIS experts who are focused on building easy to use and easy to maintain web-based, geocentric story maps and dashboards to serve not only our clients, but also their constituents. These tools provide a dynamic way to present complicated information visually. Many agencies are already using Esri software and ArcGIS Online, and we look for ways to leverage that existing licensing, subscriptions, and infrastructure to elevate the data we are delivering. We have built story maps for clients to help explain to citizens how a pavement survey works, how the analysis is performed, and how the maintenance and rehabilitation budgets are distributed to maximize the use of scarce funding. In addition to the story maps, we have also deployed agency-focused dashboards to enable managers to easily review the planned work, existing and forecasted conditions, and funding impacts on a map.





AFFIDAVIT

STATE OF Florida)
) SS.
COUNTY OF Pinellas)

Mikael Nieminen of the city of Largo, FL

County of Pinellas State of Florida being duly sworn on her or his oath, deposes and says,

1. That I am the CEO (Title of Affiant) of IMS Infrastructure Management Services, LP (Name of Bidder) and have been authorized by said Bidder to make this Affidavit upon my best information and belief, after reasonable inquiry as to the representations herein.

2. No Officer, Agent or Employee of Jackson County, Missouri is financially interested directly or indirectly what Bidder is offering to sell to the County pursuant to this Invitation (though no representation is made regarding potential ownership of publicly traded stock of bidder).

3. If Bidder were awarded any contract, job, work or service for Jackson County, Missouri, no Officer, Agent or Employee of the County would be interested in or receive any benefit from the profit or emolument of such.

4. Either Bidder is duly listed and assessed on the tax rolls of Jackson County, Missouri and is not delinquent in the payment of any taxes due to the County or Bidder did not have on December 31, 2022, any property subject to taxation by the County and if bidder is duly listed and assessed on the tax rolls of Jackson County, Missouri, bidder agrees to permit an audit of its records, if requested by the Jackson County Director of Assessment, as they relate to the assessment of Business Personal Property.

5. Bidder has not participated in collusion or committed any act in restraint of trade, directly or indirectly, which bears upon anyone's response or lack of response to the Invitation.

6. Bidder certifies and warrants that Bidder or Bidder's firm/organization is not listed on the General Services Administration's Report of Debarred and/or Suspended Parties, or the State of Missouri and City of Kansas City, Missouri Debarment List.

7. Bidder certifies and affirms its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services.

8. Bidder certifies and affirms that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services.

IMS Infrastructure Management Services, LP (Name of Bidder)

By: [signature] (Signature of Affiant)

CEO (Title of Affiant)

Subscribed and sworn to before me this 12th day of April, 2022

[signature]

NOTARY PUBLIC in and for the County of Pinellas (SEAL)

State of Florida

My Commission Expires: Feb. 15, 2025

LOIS MARY SOMERS
Notary Public - State of Florida
Commission # HH 93451
My Comm. Expires Feb 15, 2025
Bonded through National Notary Assn.