IMS Budget – Scope Document

Infrastructure Management Services
8380 S Kyrene Rd, Suite 101
Tempe, Arizona 85284
IMSanalysis.com; (480) 839-4347

To:	Terry Thomas, P.E., Project Manager	**Date:**	January 12, 2022
From:	Jeff Myers, M.S.A., Client Services Manager	**Project:**	Automated Data Collection and Pavement Condition Survey For Streets
Subject:	Project Scope of Work	**Project No:**	**RFP 21-098**

Thank you for selecting IMS to conduct the network wide pavement data collection assignment. IMS is proposing to utilize our Laser Road Surface Tester for the acquisition of pavement condition and imagery.

Proposed Project Budget

The detailed budget presented below is based on the IMS work plan and deliverables.

Independence, MO - 2021 Pavement Condition Project

Task	Activity	Quant	Units	Unit Rate	Total
	Project Initiation				
1	Project Initiation	1	LS	$3,000.00	$3,000.00
2	Network Referencing, Inventory Checks and Survey Map Development	745	T-Mi	$20.00	$14,900.00
	Field Surveys				
3	RST Mobilization/Calibration	1	LS	$3,000.00	$3,000.00
4	RST Field Data Collection - Pavements	745	T-Mi	$95.00	$70,775.00
	Data Management				
5	Data QA/QC, Processing, Format, & Supply (Excel; Shapefile; KML)	745	T-Mi	$22.00	$16,390.00
6	Right-of-Way Asset Data Collection (GPS & ROW Imagery)	745	T-Mi	$10.00	$7,450.00
	a. Curb & Gutter ROW Database Development	745	T-Mi	$38.00	$28,310.00
	b. Sidewalk & Ramp ROW Database Development	745	T-Mi	$75.00	$55,875.00
7	Provision of Digital Images at 15-20 ft increments (three views)	Included			
				Project Total	**$199,700.00**

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Detailed Project Scope:

GIS / Network Inventory

Scope Details:

- Project Initiation
  - Confirm scope, extent, and content of surveys, set milestones, and confirm deliverables.
  - Confirm key contacts, roles and responsibilities, and project documentation.
  - Confirm communication cadence, including regular updates with details and narrative around progress and any expected delays.
  - Provide periodic progress reports on milestones and changes in anticipated schedule.
  - Identify location of key data elements such as traffic data, GIS, existing roadway inventories, and pavement management data.
  - Identify deficient data and the means to obtain it.
  - Confirm phases of the work and invoicing methodology.
- Network Referencing, Inventory Checks and Survey Map Development
  - Gather existing centerline topology for data collection preparation.
  - Obtain/confirm roadway attributes from GIS for functional class, traffic (if available), width, length, pavement type, etc. If not available, devise plan to obtain them.
  - Review existing segmentation, recommend updates. Review and audit the City's roadway inventory (PMS/GIS linkage, functional class, surface type, length, width, and number of lanes).
  - Split, combine, or add new sections as necessary.
  - Ensure each segment is linked to its appropriate parent GIS section.
  - Develop field survey maps and detailed network inventory for use by the RST and client review.

Deliverable Details:

- Completed survey map approved by the City.

Pavement Assessment

Scope Details:

- Data Collection
  - Mobilize LCMS-2 RST testing equipment to project.
  - Demonstrate the equipment to City personnel.
  - Calibrate equipment.
  - Complete single lane testing on all residential roadways, and two-lane testing (outside lanes) on all collector, arterial, and divided roadways.
  - Collect data for approximately 745 test miles, based upon 587 centerline miles of residential roadway including 158 miles of arterial and collector roadway.
  - Collect modified ASTM D6433 distresses and attributes delivered in block-to-block segmentation basis.

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- Provision of Digital Images **(Optional)**
    - Process one view of digital video at 15-20 ft intervals.
    - Deliver images as a personal geodatabase
- Data Processing and QC
    - Develop exceptions report for lengths that do not match GIS within 15% or 50 ft.
    - For each data stream (surface distress, roughness, GPS), aggregate and process the data at the segment level.
    - Develop individual index scores for surface distress, and roughness as appropriate.
    - Develop a pavement condition index for each section.
    - Produce shape files of the processed data.
    - Complete quality review of data.

Deliverable Details:

- Client Review Spreadsheet with segment level data and visual summarization for Client review.
- **If Images are selected as a deliverable**: External hard drive with personal geodatabase and archive of images collected from the network. Images provided at 15–20-foot intervals. One of the following image views will be provided (Left Front: LF; Right Front: RF; Rear Downward: DW; Left Rear: LR).

Final Pavement Management Report

- After receiving City approval of the condition data, begin assembling a comprehensive report.
- The report shall include a summary of the network value, pavement condition, PCI definitions, and the results of the survey
- The written report shall be supplemented with appendix's that contain segment level data.
- Deliver draft report to City and incorporate any modifications to the analysis or reporting methodology.

Deliverable Details

- Delivery of formal final report in City designated format.

Right-of-Way Asset Inventories

Scope Details:

- Inventories include Curb/Gutter, Sidewalks and ADA Ramps
- Extract right-of-way assets from imagery.
- Match existing asset IDs as part of verification process for all asset categories
- See attached Master Asset List (MAL) for details related to attributes.

Deliverable Details:

- Final deliverable will be an ESRI GIS File Geodatabase with individual feature classes for each asset data deliverable.

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Optional PAVER Training

Scope Details:

- While many PAVER related questions may be answered during the course of the project, it is understood that there may be a need for additional training. If necessary, IMS can conduct remote PAVER training for $225/hour, or onsite PAVER training for $3,000 per day (8 hours).

Thank you for your interest and confidence in Infrastructure Management Services as your pavement and asset management specialists. We will strive to be an asset and extension of the City of Independence staff and team. If any questions arise, please do not hesitate to contact me at (417) 372-7021 or jmyers@imsanalysis.com.

Regards,

IMS Infrastructure Management Services

Jeff Myers, M.S.A.,
Central Region Manager of Client Services

Right of Way MAL // Sidewalk

Asset	Code	Asset Type	Measurement	Definition
Sidewalk	**SW**	Linear	Feet	An identification of the start and end of definable roadside adjacent sidewalk structures. If no structure exists, no entry

Attribute	Code	Reponses	Representation	Definition
OBJECTID		Object ID	Numeric	Internal ESRI field
PS_ID			Numeric	A number string representing a unique identifier for the asset stating at 100000
Segment_ID			Numeric	Street segment ID of the street adjacent to the asset
Photo_Hyperlink			Text	The URL link to photo associated with asset.
Shape_Length			Numeric	The graphical length of the segment
SW_Type			Text	The primary method of construction/style of the sidewalk for the length being examined
	1	Mono curb and walk		The curb and sidewalk form one structure
	2	Stand alone		There is no boulevard or curbing between the roadway structure and the sidewalk
	3	Boulevard walk		The sidewalk has grass areas on both sides
	4	Meandering		The sidewalk does not follow a straight line and may be both Mono and Boulevard
	5	Commercial		The sidewalk is very wide, reaching from the road to store-fronts or businesses
	6	Other		The sidewalk is some other type than those areas listed above
	7	NO SIDEWALK		No sidewalk in this location
	8	NA		Not Available, not rated
SW_Condition			Text	This identifies the overall, general condition of the sidewalk
	1	Very Good		The sidewalk appears to be in like new condition - no visible deterioration
	2	Good		The sidewalk appears to be smooth and has only slight deterioration
	3	Fair		The sidewalk appears to be smooth a with only minor cracks and deterioration
	4	Poor		The sidewalk shows signs of moderate deterioration, unevenness or cracking, possibly requiring maintenance
	5	Very Poor		The sidewalk shows signs of extensive deterioration, unevenness or cracking requiring replacement
	6	NA		The condition was not rated
SW_Material			Text	The predominant construction material for the length of the sidewalk
	1	Concrete		The material used is concrete
	2	Asphalt		The material used is asphalt
	3	Stamped Concrete		The concrete surface has patterns impressed into it
	4	Exposed Aggregate		The concrete surface is exposed aggregate or combination of concrete and exposed aggregate
	5	Pavers / Brick		The sidewalk is constructed of pavers or brick or a combination of pavers/brick and concrete
	6	Gravel		The material used is gravel, shale, or any crushed aggregate
	7	Other		The material is something other than those listed above
	8	NA		Not Available, not rated

SW_Width			Text	The predominant width of the sidewalk
	1	Narrow		On average, the sidewalk width is less than the agency standard (assumed to be 4 feet unless noted)
	2	Standard		On average, the sidewalk width is agency standard (assumed to be 4 feet unless noted)
	3	Wide		On average, the sidewalk width is 1 to 2 times agency standard (assumed to be 4 to 8 feet unless noted)
	4	Extra Wide		On average, the sidewalk width is 2 times or more agency standard (8 feet or more unless noted)
	5	NA		Not Available, not rated
SW_Obstructions			Text	Commentary of observed obstructions, if any along the sidewalk. This does not constitute a sidewalk obstruction
	1	None		No obstructions or encroachments were observed along the sidewalk
	2	Slight		At least one (1) obstructions or encroachment was observed
	3	Moderate		More than one (1) obstruction or encroachment was observed
	4	Extensive		Sidewalk is partially or fully blocked by an obstruction or encroachment
	5	NA		Not Available, not rated
SW_Comment			Text	General comment about the asset, if any. Typical values: UCON (under construction) or NO SURVEY (asset was drawn but no survey photos available.)

Right of Way MAL // Curb

Asset	Code	Asset Type	Measurement	Definition
Curb and Gutter	**CG**	Linear	Feet	An identification of the start and end of definable roadside adjacent curb and gutter structures. If no structure exists, no
Attribute	**Code**	**Reponses**	**Representation**	**Definition**
OBJECTID		Object ID	Numeric	Internal ESRI field
CG_ID			Numeric	A number string representing a unique identifier for the asset stating at 100000
Segment_ID			Numeric	Street segment ID of the street adjacent to the asset
Photo_Hyperlink			Text	The URL link to photo associated with asset.
Shape_Length			Numeric	The graphical length of the segment
CG_Type			Text	The primary method of construction/style of the curb for the length being examined
	1	Barrier and Gutter		There is a defined gutter for collecting water and vertical curb face next to the road
	2	Barrier Curb only		There is only a curb with a vertical face next to the road - no water collection structure is apparent
	3	Mountable and Gutter		The curb and gutter are formed in such a way that it easy to drive over them.
	4	Mountable Curb only		There is only a curb with an easy to drive over face next to the road - no water collection structure is apparent
	5	Ribbon		Flat curb in the same plan of the roadway allowing drainage to run over the curb
	6	Median Curb		The curbing is located along a median island and may be barrier or mountable
	7	Valley Gutter		The curbing runs across the mouth or a street or eyebrow
	8	EOP		Edge of Pavement, no curb exists, not rated
	9	NA		Not Available, not rated
CG_Condition			Text	This identifies the overall, general condition of the curb
	1	Very Good		The curb appears to be in like new condition - no visible deterioration or sags
	2	Good		The curb appears to be smooth and has only slight deterioration or sags
	3	Fair		The curb appears to be smooth a with only minor cracks, displacements, sags and deterioration
	4	Poor		The curb shows signs of moderate deterioration, displacements or cracking, possibly requiring maintenance
	5	Very Poor		The curb shows signs of extensive deterioration, displacments or cracking requiring replacement
	6	NA		The condition was not rated
CG_Material			Text	The predominant construction material for the length of the curb
	1	Concrete		The primary construction material is concrete
	2	Asphalt		The primary construction material is asphalt
	3	Curb/Cut Stone		The primary construction material is granite or other stone that cut and fit into the edge of the road
	4	Precast		The primary construction material is precast concrete dividers or similar materials
	5	Other		The material used in construction is none of the above
	6	NA		Not Available, not rated
CG_Reveal			Text	This quantifies if the gutter has been overlaid, or if another overlay can be added
	1	Full Reveal		The gutter has not been overlaid, or there is greater than 6" reveal remaining (not measured)
	2	Partial reveal		The gutter has been overlaid or there appears to be 2" to 6" of reveal remaining
	3	None		The gutter has been overlaid or there appears to be less than 2" of reveal remaining
	4	NA		Not Available, not rated
CG_Paint			Text	Notation of the color if any or all of the curb is painted along the section
	1	Not Painted		There is no painted portions of the curb along the entire segment
	2	Red		All or a portion of the curb is painted red
	3	White		All or a portion of the curb is painted white
	4	Green		All or a portion of the curb is painted green
	5	Other		All or a portion of the curb is painted in some color
	6	Blue		All or a portion of the curb is painted blue
	7	NA		Not Available, not rated
CG_Comment			Text	General comment about the asset, if any. Typical values: UCON (under construction) or NO SURVEY (asset was drawn but no survey photos available.)