October 14, 2025

City of Lee's Summit
Vince Schmoeger, Project Manager
220 SE Green St.
Lee's Summit, MO 64063

Reference: RAS Pavement Management Services Proposal

Dear Mr. Schmoeger,

Roadway Asset Services, LLC (RAS) is pleased to discuss the potential pavement and asset management needs for the City of Lee's Summit. RAS is headquartered in Austin, Texas and provides objective pavement management data and asset inventories to clients across the US. **In the last 5 years, RAS executive team members have managed over 100,000 miles of pavement condition and asset inventory data.** Throughout their careers, the RAS leadership team has managed pavement data and ROW asset collection for 10 of the 20 largest U.S. Cities and agencies across the Midwest including:

- Topeka, KS
- Bixby, OK
- Peoria, IL
- Denver, CO
- Kansas City, MO
- Grand Island, NE
- Rochelle, IL
- Grand Junction, CO
- Sedalia, MO
- Lincoln, NE
- Denton, TX
- Pueblo, CO

Our team is a full-service pavement and asset management consultant that collects pavement performance data using laser based automated technologies and analyzes the data using sound financial optimization modeling. In addition, our services include the configuration of many available 3rd party pavement management programs such as **BOSS™**, PAVER, Cartegraph, Streetlogix, Brightly, DOT, Agile Assets, VUEWorks, Lucity, and many others.

RAS understands the City is seeking a qualified data collection vendor to conduct a pavement condition assessment on approximately 500 centerline miles of paved roadways, with one pass conducted on local roads and two pass testing on arterial and collector roadways resulting in 600 survey miles. In addition, RAS will perform a financially optimized pavement analysis that includes full customization of the **BOSS™** pavement management system with the delivery of a final report and PowerBI portal hosted by RAS.

RAS is an approved vendor through the HGACBuy purchasing cooperative via contract HP08-25. We look forward to building a long-term relationship with the City of Lee's Summit. Our team is prepared to deliver a scope of work that is tailored to the needs and goals of the City Stakeholders. Please do not hesitate to reach out with any questions or comments regarding these services.

Sincerely,

Bart Williamson, FCLS
Chief Executive Officer

Firm Overview

Roadway Asset Services, LLC (RAS) is an engineering firm (License #: F-22104) headquartered in Austin, Texas with a regional office in Springfield, MO. RAS team members have managed automated data collection, performed QA/QC, developed pavement management plans, supplied GIS based deliverables, and provided imports and modeling for cities across the United States. RAS offers comprehensive experience and subject matter expertise in the fields of engineering, surveying, asset management, transportation planning, and GIS.

In the past 5-years, RAS has obtained over 150 contracts from transportation agencies for pavement condition surveys, ROW asset inventories, and data analysis. **RAS is a Silver ESRI Business partner** with a leadership team composed of seasoned pavement management professionals who bring over a combined **150 years of experience in pavement condition survey management.**

The Firm's Service Commitment to Customers: RAS was founded on the core principles of collaborating with our clients, cultivating those relationships, and embracing innovation in technology resources. RAS strives to provide accurate data-driven results that allow our clients to make the best possible management decisions while enjoying the passion we all share in improving infrastructure.

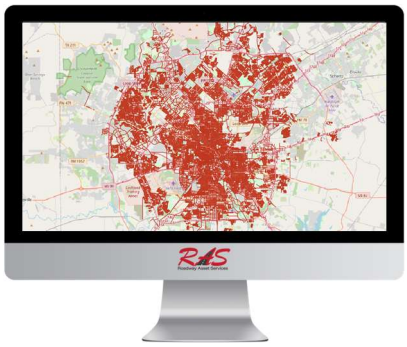
The RAS leadership team consists of seasoned pavement management professionals who bring over 100 years of database integration and pavement condition survey management. Our team will provide prompt and relevant services as demonstrated by RAS leadership's direct involvement in each project the Firm undertakes.

Project Methodology

Task 1: Initiation, GIS Centerline Identification & Field Setup

At the outset of the project, RAS will request the existing GIS centerline files and pavement inventory for use in this project. After an initial review, RAS will conduct a kickoff meeting with the City to discuss the GIS files, project methodology and processes, deliverable formats, bi-weekly progress meetings, and additional data needed requirements.

Centerline Identification & Field Setup



RAS will review the existing GIS centerline and segmentation to ensure that all roads requiring data collection are surveyed. This will include a review of functional classes and coverage checks. RAS will use the existing centerline data and update the pavement database on the centerline layer. Each segment record in the centerline layer will have a corresponding record in the pavement database.

In addition, RAS will work with the City to maintain the unique identifier of each road segment in the road network so that the pavement database can maintain a link to the GIS data. The result will be a clean GIS centerline ready for consumption of additional layers and attribution related to the pavement condition surveys and right-of-way asset inventories.

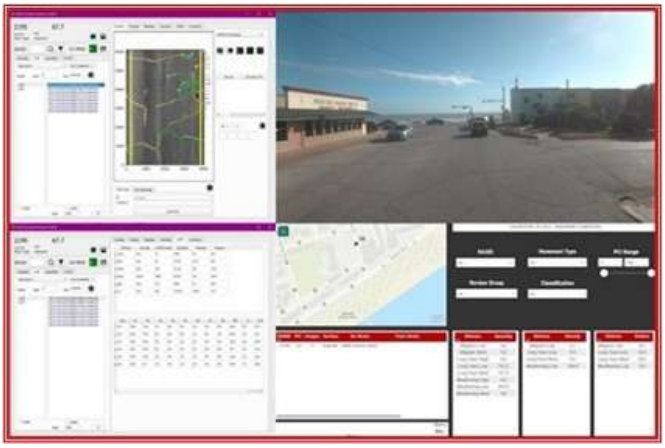
Task 2: Pavement Condition Surveys and ASTM D6433 Data

Roadway Asset Collection (RAC) Vehicles

RAS has invested in the most sophisticated fleet of roadway asset collection (RAC) vehicles and pavement analysis tools for automated data collection that provides a **100% linear assessment** of the roads driven. This methodology removes the subjectivity of rating small sample areas of the road segment. Unlike many of our competitors, RAS utilizes a ROW capture system to provide an **immersive 360° view** versus stationary independent camera views. Furthermore, RAS' RAC vehicles have **received independent inertial profiler certification for accuracy and repeatability from the Texas A&M Transportation Institute (TTI).**

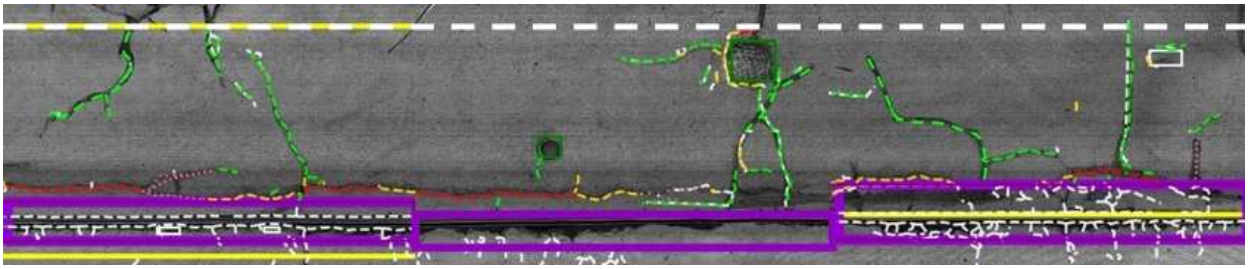
RAS has developed this proposal with an estimate of 500 centerline miles. Following industry standards, RAS will survey arterial and collector roads in each direction, while single pass testing the local/residential roads. This approach ensures representative data is collected for development of the PCI scores.

Task 3: Pavement Rating and QC/QA



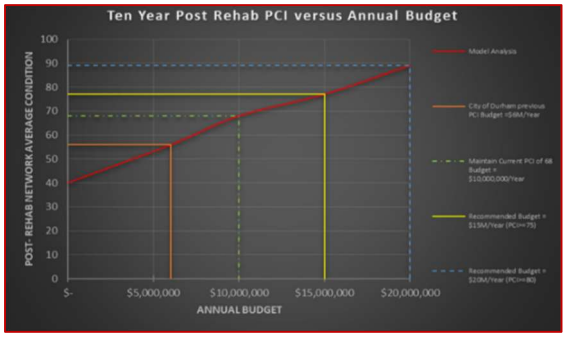
After data is collected in the field and uploaded to the office environment, it is imported using the RAS AI pavement rating tool **Road TRIP™ (Technical Rating Intelligence Program)**. The import process creates mappings to the data so that users do not need to keep track of where the data is stored on central data server(s). At this stage, the major data processing tasks also occur, such as generation of right-of-way and pavement image streams; calculation of profile, roughness, rutting, detection of cracks, lane-markings, intended design features, and other distresses. At this stage of the project, RAS staff will also verify the pavement widths for each segment of the roadway.

The detected cracks are overlaid on the pavement images and offset to assist with the verification of the detected cracks. During reporting, the distress cracks are defined by road zone and accumulated according to the units defined in the client specification. The severity levels are identified based on the defined limits (ASTM D6433) and verified for resolution through visual quality control checks of image files.



Task 4: Pavement Analysis & Multi-year Plan

Budget Optimization Street Selector (BOSS™)



For agencies that do not yet have a pavement management program developed or do not desire to do so, RAS has developed a pavement management program called **BOSS™ (Budget Optimization Street Selector)** that is utilized for customized deterioration curves which results in a prioritized multi-year rehabilitation plan that is financially optimized and ready to be presented to City administrators or elected officials. The benefit of the **BOSS™ Analysis** is that there is no software to install, purchase, or maintain. The results of the analysis are delivered to the City in a **Power BI Dashboard** and bound in a final report to City Staff.

Configuring BOSS™ for the City of Lee's Summit

RAS can assist the City with both inventory and condition assessment to enhance the level of service for its business units. RAS can also assist the City with determining the right treatment (prescription) at the right time. The RAS team has vast experience in capital planning (decision trees) of these inventoried assets as they are strategically programmed for replacement, refurbishment, or general maintenance.

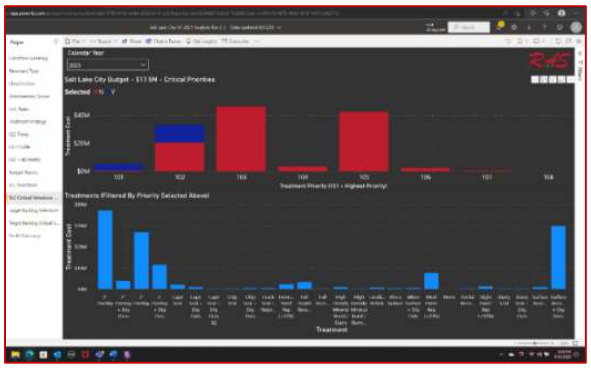
RAS will utilize its **BOSS™** tool to adopt the City's segment level GIS centerline, run budgetary models, financially optimize the multi-year plan using sound "cost of deferral" constraints, and produce a final maintenance and rehabilitation plan for the City's review. **BOSS™** is a cloud based application with powerful pavement management algorithms behind it that export the results of the pavement analysis to a user friendly interface such as Microsoft PowerBI or even a simple Excel spreadsheet if desired. All of the results are integrated with the City's existing GIS and supplied to the City as a Personal/File Geodatabase for consumption and storage.

The RAS analysis involves the following sequences and client engagements during the process:

- **Maintenance & Rehabilitation Setup** – to ensure the results of the budget model runs meet the City's expectations, RAS will discuss the current Maintenance and Rehabilitation plan within the pavement analysis setup. This activity will include a review of Min/Max PCI, Breakpoint PCI, decision trees for treatments, real-world impact to PCI, and reset PCI scores.
- **Deterioration Curves** – forecasting pavement conditions requires a detailed set of pavement deterioration curves for each roadway traffic classification and pavement material type, as designated by the pavement management system.
- **Project development** – the **BOSS™** analysis includes stitching segments (block) together to form a project, also known as a "management section". RAS will work with City Staff to review the initial model results and begin "stitching" segments together to form logical projects that best

meet the needs of the City. The benefit of utilizing management sections is that the RAS analysis runs the budgetary scenario at the project level, producing real-world rehabilitation plans that are ready for review, modification, or action.

- **Financial Optimization & Prioritization** – The **BOSS™** analysis uses sound engineering and economic logic to prioritize which street candidates are selected throughout the multi-year plan. While most pavement management programs will prioritize by roadway traffic and condition, a **BOSS™** analysis takes it a step further and introduces financial optimization into candidate selection through the use of a "Need Year" analysis that identifies each segment's cost of deferral. Understanding the "Cost of Segment Deferral" allows the analysis to maximize the City's limited funds in the best manner possible.



Budgetary Modeling

RAS will work with the City to establish the maintenance and rehabilitation activities, PCI trigger points, costs, reset PCI values, completed rehabilitation work since the survey, planned work, existing budgets, pavement deterioration curve development/assignment, and inflation priorities. RAS will assist City Staff with determining the right treatment at the right time by reviewing the City's existing maintenance and rehabilitation strategies and recommending others that may be a good fit. The scope will include developing up to 8 multi-year pavement management scenarios using different philosophies, budget levels, and distributions. While RAS will define the scenarios to be run with City staff, at a minimum the following questions should be answered with the scenarios:

- **What is the resultant network PCI at my current funding level?**
- **What budget is required to maintain my existing network PCI?**
- **What budget is required to achieve a desired network PCI?**
- **What budget is required to control the growth in backlog?**

RAS will also consult with City staff to develop models utilizing different types of rehabilitation strategies (worst first, best first, most economic, need year, etc.). RAS understands that getting buy-in from City Administrators and Elected Officials means developing a long-range rehabilitation plan that considers local priorities. The RAS team will ensure that already approved rehabilitation work is programmed into the budgetary models for selection during the run. In addition, RAS will consult with City staff to identify the total cost (mill, overlay, traffic control, striping, etc.) of each rehabilitation method.

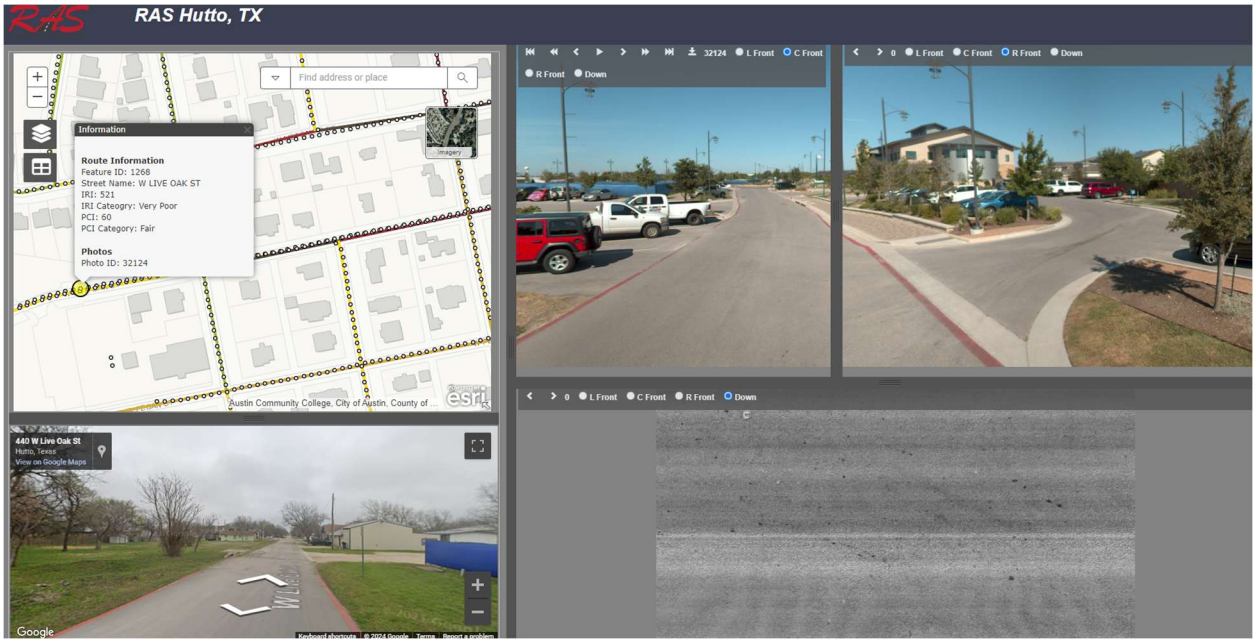
Final Pavement Report

RAS will provide the City with a Final Pavement Report including study objectives, methodology utilized, project summary, analysis of current pavement management practices, rehabilitation plans, and multi-year budget scenarios. In addition, the City will receive statistical charts, graphs, and area maps illustrating all PCI results, street segment lengths, pavement type, the overall City road quality, and findings from the pavement evaluation.

Task 5: RAS Videologger [1-Year Service]

RAS will deploy a web-hosted videologger with the survey imagery and PCI map. The videologger is a web hosted, full-service image viewer that allows our clients to select a section of roadway from the GIS-based map to visually display the inventory elements and the results of their survey. The viewer is hosted on a reliable web platform such as Amazon Web Services (AWS). The RAS Videologger allows the City to load pavement and ROW imagery for a specific location within the City and sequentially travel down the roadway. If needed, within the Videologger, the City can load high-resolution images to provide more detailed site investigation while displaying PCI and IRI data for the selected section. In addition, the Videologger **houses the Ladybug Panoramic ROW imagery, LCMS downward pavement imagery**, PCI scores, and right-of-way inventories (optional add-on).

Following the Pavement Condition Assessment, all **LCMS-2 camera imagery** will be loaded to the videologger with each image resulting in 1 mm-pixel resolution and horizontal resolution of 4,000 pixels. The benefit of having the LCMS imagery on the same platform as the Ladybug imagery is the ability to use the forward-facing camera to see what a typical driver would see from a windshield while comparing it against the downward LCMS laser array that focuses only on the pavement surface itself.



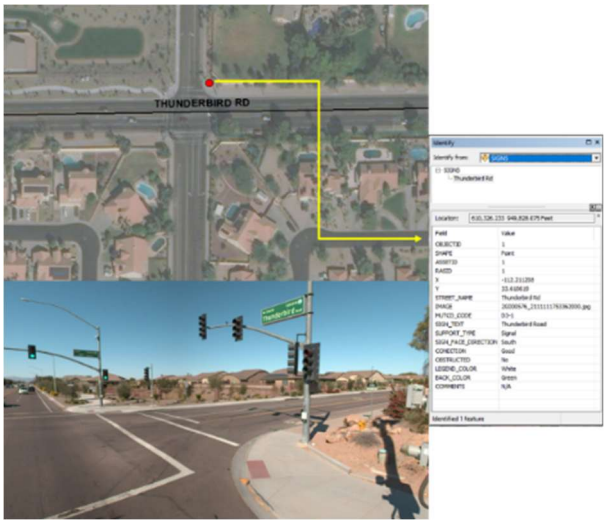
Task 6: ROW Asset Inventory and Condition Assessment

RAS will conduct a ROW asset inventory using data and imagery that is collected for the pavement condition survey. **The images will be collected as a 360-degree right-of-way panorama, including forward, rearward, and downward pavement viewing images.** All 5-views of Ladybug imagery are processed in 20-foot intervals along with the downward LCMS for right-of-way asset extraction activities. The imagery will be delivered in .jpeg format, on a hard drive, or associated with a File Geodatabase.

RAS can inventory and extract attributes on nearly any asset that can be identified in the images. Common roadside features for capture include traffic signs, pavement markings/striping, curb and gutter, traffic calming devices, traffic signals, streetlights, fire hydrants, bus stop shelters, medians, and many others.

For the City of Lee's Summit, RAS will use the HD images and post-process data using RAS software to collect attributes for **Traffic Signs/Supports** and **Curb & Gutter**. Each asset will be associated to the pavement segment and unique ID for that segment.

The data dictionary (attributes) included for this project are included below:



Sign & Support Data Dictionary

Feature Class	Attribute	Format	Structure Example	Description
Signs	AssetID	Integer	100000	Unique GIS identifier for each sign
	XY Location	Integer	41.40338, 2.17403	GPS location in decimal degrees
	Street Name	Text	Michigan Ave.	Name of the roadway the asset is located on
	Photo Image Link	Text	Hyperlink	Link to the imagery (provided via external hard drive)
	MUTCD Code	Text	R1-1	MUTCD code (see Tab with Standard Codes)
	Sign Text	Text	Stop	Populated from MUTCD Manual
	Condition	Text	Fair	Visual rating of the condition of the structure: 1-Good, 2-Fair, 3-Poor
	Sign Face Direction	Text	S	Direction of the sign face: E-W-N-S-NW-NE-SW-SE
	Obstructed	Text	No	Identifies if the sign is obstructed: Yes or No
	AssetID (Post)	Integer	200000	Unique GIS identifier for each support
	Post Total	Integer	3	Number of signs affixed to support structure
	Comments	Text	Faded Text	Comments generated from GIS technician
Condition Rating Criteria				
1-Good: sign is visible, not faded, straight/upright, legible, no graffiti				
2-Fair: sign has minor to no visual defects with good visibility, not faded, straight/upright, legible, no graffiti = sign that may need replacement after 5 or more years				
3-Poor: sign has many visual defects with poor visibility faded, bent, or pushed over (sign panel or post), heavy graffiti; obstructed; not visible or legible = sign needs immediate replacement				

Curb & Gutter Data Dictionary

Feature Class	Attribute	Format	Structure Example	Description
Curb&Gutter	AssetID	Integer	100000	Unique GIS identifier for each sign
	XY Location	Integer	41.40338, 2.17403	GPS location in decimal degrees
	Street Name	Text	Michigan Ave.	Name of the street the asset is located on
	Photo Image Link	Text	Hyperlink	Link to the imagery (provided via external hard drive)
	Side of Road	Text	E	Placement of the asset on the road: E-N-S-W
	Condition	Text	Fair	Visual rating of the condition of the structure: 1-Good, 2-Fair, 3-Poor
	Painted Color	Text	Green	The primary color of the curb structure: none, yellow, green, etc.
	Material Type	Integer	2	The material of theasset structure: 1-PCC Standard, 2-PCC Media, 3-PCC Pinned, 4-PCC Other, 5-Asphalt Curb, 6-Granite/Block Curb, 7-None
	Comments	Text	Faded Text	Comments generated from GIS technician
Condition Rating Criteria				
1-Good: The curb appears to be in like new condition; or is smooth and has only slight deterioration or sags				
2-Fair: The curb appears to be smooth a with only minor cracks, displacements, sags and deterioration; possible maintenance need				
3-Poor: The curb shows signs of extensive deterioration, displacments or cracking requiring replacement				

Optional Services

BOSS™ 12-Month PMaaS Subscription

As a dedicated pavement and asset management consultant, RAS is committed to the long-term success and improvement of the City's roadways. As such, RAS can provide on-call pavement and pavement analysis support related specifically to **BOSS™**. Supporting activities can include the common tasks identified in the **table below** or even ad-hoc requests such as running a new scenario requested by City Administration. The 12-month PMaaS support subscription is meant to be flexible and provide the City with immediate access to consulting services that are dedicated to the use of the **BOSS™** pavement management expertise. Hours can be used for additional training or even the assignment of tasks to the RAS support team such as programming completed work on a monthly basis, assigning tasks (planned work), modifying supersegments when projects do not match their existing geometry, running ad-hoc budgetary scenarios, refreshing PCI, or even simply consulting on best practices related to the use of pavement preservation techniques and pavement design.

The PMaaS subscription level corresponds with the level of service updates required by the City and is listed as **BRONZE**, **SILVER**, **GOLD, PLATINUM,** or **TITANIUM**. These services are entirely optional and not a requirement. They are meant to support an agency's annual analysis update requirements if they lack the internal resources or time to complete them internally.

BOSS™ Pavement Management Subscription Support Services	Bronze - Up to 40 Hours	Silver - Up to 80 Hours	Gold - Up to 120 Hours	Platinum - Up to 160 Hours	Titanium - Up to 200 Hours
Age Condition Data Review	●	●	●	●	●
Completed Work Update	●	●	●	●	●
Planned Work Update	●	●	●	●	●
Update Unit Rates	●	●	●	●	●
Refresh Budgets	●	●	●	●	●
Update Analysis Maps	●	●	●	●	●
GIS Syncronization	●	●	●	●	●
Modify Deterioration Curves		●	●	●	●
Modify Treatment Strategies		●	●	●	●
Update Written Report and Power Bi		●	●	●	●
Modify Super Segments			●	●	●
On-Call Pavement Module Support			●	●	●
Council Presentation Assistance			●	●	●
On-Call Professional Services Support				●	●
Adding Street Segment GIS Inventory				●	●
GIS Assistance with Linework					●

Cost Proposal

Below you will find a summary of the budget scenario associated with the services discussed during our meeting for the City's pavement management needs.

This proposal includes RAS performing pavement condition surveys on approximately 600 test miles, with one pass conducted on local roads and two pass testing on arterial and collector roadways. In addition, RAS will perform a financially optimized pavement analysis that includes full customization of the BOSS™ pavement management system with the delivery of a final report and PowerBI portal hosted by RAS. Included options for this project will be the delivery of the hosted RAS Videologger for 1-year upon Go-Live/Deployment and development of right-of-way asset inventories for Signs/Support and Curb & Gutter.

The fee schedule has been derived from the published rates available via **HGACBuy contract HP08-25** and the RAS Fee Schedule titled: **HP08-25_Response_Price_List_Form (RAS)_JUN25.**

Project Total: $240,900.00

[See Next Page for Form]

Projected Milestones

Task / Milestone	Task Duration	Project Duration
Initiation, GIS Review and Mobilization	2 Weeks	2 Weeks
Network Collection	5 Weeks	7 Weeks
PCI Data Extraction, Processing & Rating	18 Weeks	25 Weeks
Data Validations of Pilot Roads	*1 Day*	*Concurrent Task*
Pavement Analysis, Scenarios & Report	6 to 12 Weeks	31 to 37 Weeks
ROW Asset Inventories (Post Survey)	18 Weeks	25 Weeks
Hosted Videologger 'GO-LIVE'	2 to 3 Weeks	40 Weeks

Videologger Note for Continuing Service:

- The license for the first year of the RAS Videologger would start at Go-Live/Deployment. The discounted hosting/license fee for this item (Data 15) is set at $600 per year.
- If the City would like RAS to continue hosting the videologger for ensuing years, beginning at year 2, the discounted rate of $600 per year would be maintained.

HGACBuy	CONTRACT PRICING WORKSHEET For Catalog & Price Sheet Type Purchases	Contract No.:	HP08-25	Date Prepared:	10/14/2025

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

Buying Agency:	City of Lee's Summit	Contractor:	Roadway Asset Services, LLC
Contact Person:	Vince Schmoeger, Pavement Manager	Prepared By:	Bart Williamson, CEO
Phone:	816.969.1800	Phone:	(210) 837-5249
Fax:		Fax:	
Email:	vince.schmoeger@cityofls.net	Email:	bwilliamson@roadwayassetservices.com

Catalog / Price Sheet Name:	240
General Description of Product:	Pavement & Asset Management Services

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

Quan	Item No	Service Description	Unit Pr	Total
1	2	GIS Centerline Identification & GPS Network Creation	$ 2,475.00	$ 2,475.00
1	3	Field Setup & Mobilization	$ 6,750.00	$ 6,750.00
600	4	Collect Paved Road Network	$ 135.00	$ 81,000.00
600	5	Modified ASTM D6433 [PCI] RoadTRIPTM AI with 100% Rating	$ 54.00	$ 32,400.00
1	6	Virtual RAS Data Reviews	$ 2,025.00	$ 2,025.00
1000	7	Pavement Width Verifications	$ 13.50	$ 13,500.00
1	Data 5	BOSS™ Pavement Analysis & Multi-Year Plan	$ 31,500.00	$ 31,500.00
1	Data 14	RAS Videologger Configuration & Deployment	$ 61,250.00	$ 61,250.00
1	Data 15	RAS Videologger Hosting [Pop. < 100,000]	$ 3,600.00	$ 3,600.00
1000	ROW 1	Sign & Support Inventory	$ 67.50	$ 67,500.00
1000	ROW 3	Curb and Gutter Inventory	$ 67.50	$ 67,500.00
			Total From Other Sheets, If Any:	
		RAS will bill lump sum based on percent complete for each task item	**Subtotal A:**	$ 369,500.00

B. Unpublished Options, Accessory or Service items - Itemize Below - Attach Additional Sheet If Necessary
(Note: Unpublished Items are any which were not submitted and priced in contractor's bid.)

Quan	Description	Unit Pr	Total
			$ -
			$ -
			$ -
		Total From Other Sheets, If Any:	
		Subtotal B:	$ -

Check: Total cost of Unpublished Options (B) cannot exceed 25% of the total of the Base Unit Price plus Published Options (A+B).	**For this transaction the percentage is:**	0%

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

Discount 1: Lump Sum Project Discount *	$ (128,600.00)
* Discount will be applied as a percentage of each invoice in line with the total project percent completed that month.	
Subtotal C:	$ (128,600.00)

Delivery Date:		**D. Total Purchase Price (A+B+C):**	**$ 240,900.00**