City of Dunwoody Georgia

4800 Ashford Dunwoody Road
Dunwoody, Georgia 30338
dunwoodyga.gov | 678.382.6700

MEMORANDUM

To: Mayor and City Council

From: Michael Smith, Public Works Director

Date: April 10, 2023

Subject: **Approval of a Contract with KCI Technologies for a Citywide Pavement Assessment**

ACTION
Authorize the Mayor, City Manager, or designee to execute all documents necessary and proper for a contract in the amount of $118,310 with KCI Technologies for a citywide pavement assessment.

SUMMARY
The city recently advertised a request for qualifications (RFQ 23-01) to complete a pavement assessment of the city's roadway and provide an updated pavement management plan. Statements of qualification were submitted by eight firms and KCI Technologies was deemed to be the most qualified firm for this project. The city entered into cost negotiations with KCI and a cost proposal in the amount of $118,310 has been submitted. There is adequate funding for the assessment in the Road Resurfacing project in the capital projects fund.

SUMMARY
Since inception Dunwoody has maintained an objective, measurable system for prioritizing street resurfacing. Every 4 to 5 years the city has contracted with a company that specializes in conducting pavement assessments and providing updated pavement management plans. Pavement assessments are conducted using a national standard for rating pavement condition. The rating process involves driving all of the city's streets with an instrumented van that measures ride roughness and cracks while providing 360-degree images of the roadway. The data is used to develop a pavement condition index score between 0 and 100 for each segment of roadway. A 5-year paving list is developed based on the ratings using a pavement management program that seeks to maximize the cost/benefit of paving a road at the optimum time in its life cycle. The city's last rating was completed in 2018 and the city will be completing the final year of paving this year based on those ratings.

KCI"s proposal includes implementing a new pavement management software that is more efficient and has more flexibility than the city's current software. The new software has the capability to implement a publicly accessible dashboard and also integrates with the city's asset management program, Cityworks.

Public Works staff rated the qualifications of the eight responsive firms as follows:

City of Dunwoody Georgia

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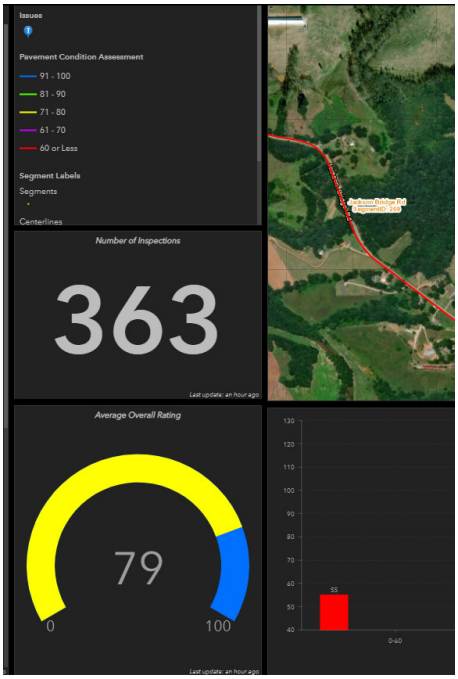
	Average Qualifications-Based Score
KCI Technologies	95.0
Roadway Asset Services	94.5
Infrastructure Management Services	94.0
Michael Baker Intl	89.5
Stantec Consulting Services	89.0
Data Transfer Solutions	89.0
A.G. Wassenaar	84.5
Think Pavement Management	82.0

RECOMMENDED ACTION

Authorize the Mayor, City Manager, or designee to execute all documents necessary and proper for a contract in the amount of $118,310 with KCI Technologies for a citywide pavement assessment.

RISE TO THE CHALLENGE

COPY



CITY OF DUNWOODY

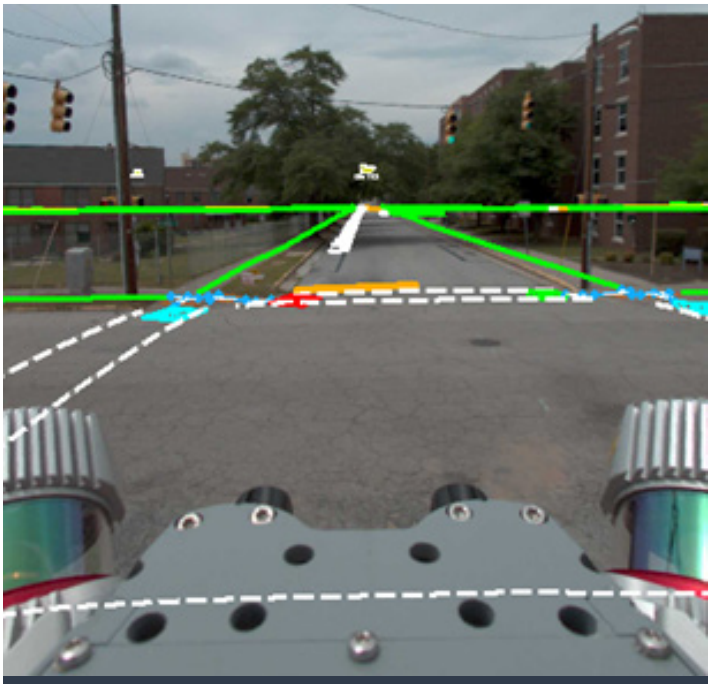
CITYWIDE PAVEMENT CONDITION ASSESSMENT

RFQ #23-01

DUE: FEBRUARY 3, 2023

SUBMITTED BY: KCI TECHNOLOGIES, INC.

KCI



4.2.1

SECTION I

4.2.1 TABLE OF CONTENTS

KCI TECHNOLOGIES

ISO 9001:2015 CERTIFIED

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

2160 Satellite Boulevard, Suite 130 • Duluth, GA 30097 • Phone 678-990-6200 • Fax 678-990-6222

February 3, 2023

John Gates
Purchasing Department
City of Dunwoody
4800 Ashford Dunwoody Road
Dunwoody, GA 30338

Re: Statement of Qualifications for **Citywide Pavement Condition Assessment, RFQ 23-01**

Dear Mr. Gates:

KCI Technologies, Inc. (KCI) understands that the City of Dunwoody (City) is seeking consultant services to complete a citywide pavement condition assessment for collecting pavement condition data, processing, analyzing recorded data, visualization, and management in a web-based GIS application backed by a geospatial database. With more than 66 years of significant experience providing professional engineering and assessment services for various clients like the City of Dunwoody, KCI has the necessary resources, expertise, and experience to manage and execute this contract.

The success of a project of this magnitude and complexity depends on the qualifications and experience of the consultant team. KCI, and our teaming partner, ESP Associates, Inc. (ESP), offers an extensive portfolio of previous pavement evaluation and web-based pavement management system implementation to help cities plan for future maintenance and asset management initiatives. Partnering with ESP to bring state-of-the-art pavement data collection technology will allow the KCI and ESP team to meet the anticipated schedule.

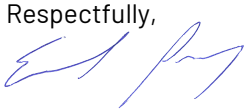
KCI is a 100 percent employee-owned engineering, consulting, and construction firm serving clients throughout the nation. With more than 2,000 full-time employees collaborating on diverse projects, KCI is constantly driven by energy, passion, and talent. We are a recognized industry leader, employing cutting-edge technologies, management practices, and strategic growth initiatives. Our team is exceptionally qualified to perform the work described because:

- **We are local and familiar with the City's roadway network and repair needs**. We have experience working in the City **with Survey for Winters Chapel Trail**, and currently, we are working with the City on a **Pedestrian Safety Action Plan Update**.
- Our Pavement Condition and Asset Inventory survey vehicle combines state-of-the-art pavement collection and survey-grade mobile mapping sensors. **This allows us to simultaneously gather pavement data, LiDAR asset mapping, and imagery for the City's road network from one mobilization**.
- We provide an automated **digital pavement condition index (PCI) rating representing the condition of 100% of the driven lanes**, not based on a sample.
- Our automated pavement assessment with **IrisPro Pave Data collection system**, **32MP 360° camera, and 3D laser crack measurement system (LCMS-2)** provides an efficient, effective, and repeatable collection and detection process to **clearly detect the type, severity, and extent of the distresses.**
- Team members possess **specialized education and experience in pavement engineering,** pavement distress mechanism, and repair strategy to **improve overall pavement conditions at a minimal cost**.

- We offer a full-service Asset Management practice with expertise in pavement and asset management software –**PAVER™, Pavement Express®, , Cityworks®, Cartegraph OMS** and other CMMS software capabilities.

On behalf of the KCI team, we appreciate the opportunity to submit our qualifications to the City of Dunwoody for this Pavement Condition Assessment. If you have questions regarding our submittal, please contact Shahidul Islam, PhD, PE, our proposed Project Manager, at 410.472.5937 or shahidul.islam@kci.com. His mailing address is 936 Ridgebrook Road, Sparks, MD 21152. We look forward to working with you.

Respectfully,



Erick Fry, PE – Vice President

4.2.2

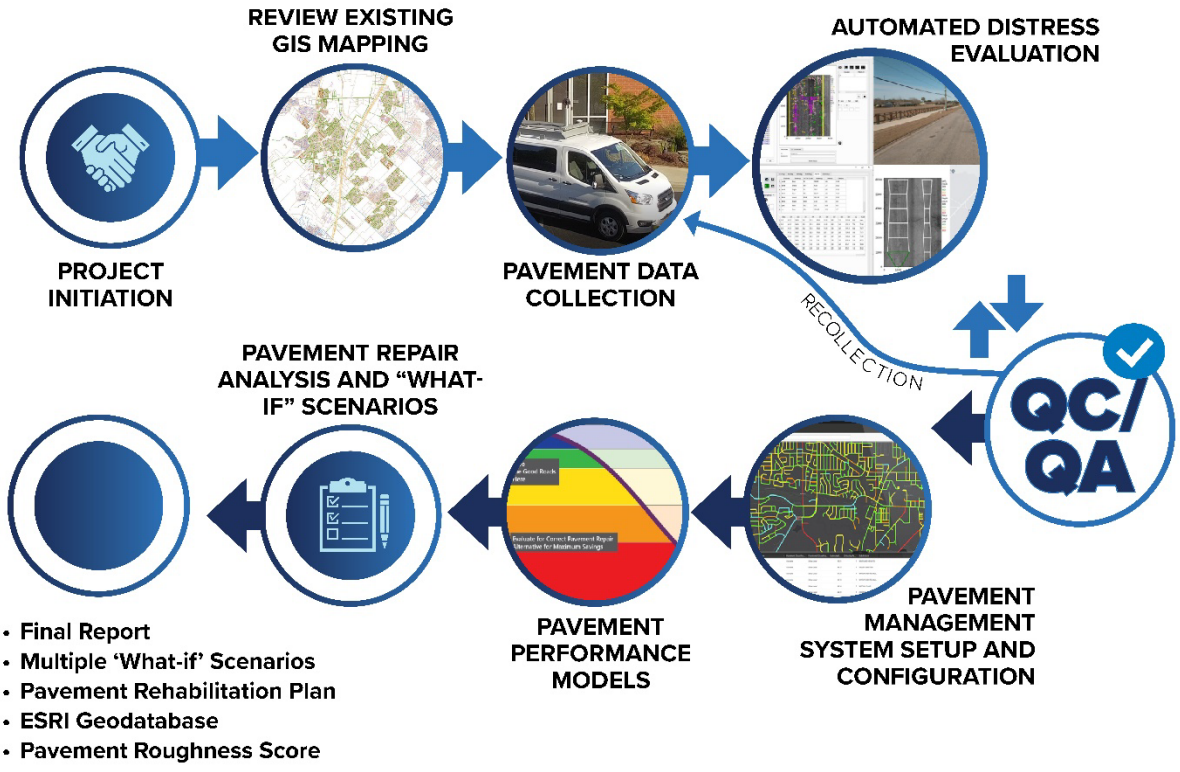
SECTION II

4.2.2 SECTION II – SUMMARY PROJECT PLAN

PROJECT PLAN

KCI understands that the City of Dunwoody requires automated image-based pavement condition data of approximately 143 centerline miles of roadways and processing the recorded data to develop a municipal-wide numerical equivalent Pavement Condition Index (PCI). The City also needs to load the updated field data, transfer existing historical data, and ensure that the data continues to provide all elements necessary for inventory, condition, maintenance and rehabilitation strategies, budgeting, and multi-year plans.

For this project, KCI will have at least three formal meetings (two virtual and one in-person) with the City staff during the course of the project. We will kick off the project with a virtual meeting to discuss the details and any specific requirements of the scope, the City's roadway network geodatabase and segmentation, pavement management software options, existing pavement conditions data, maintenance, and rehabilitation history to update the pavement management database. We plan to collect field data within two weeks of notice to proceed. The second virtual meeting will be held with the City staff to provide updates on the QA/QC of collected data, pavement condition results, PCI maps, and pavement performance models developed based on the historical and current PCI data. In this meeting, we will also discuss the pavement treatment options, including pavement preservation, the City's preference for budget scenario analysis, and the annual maintenance and rehabilitation budget. At this stage, we will load the data to the pavement management system and configure the system to run the budget scenario analysis and develop a multi-year plan. We will submit the final report and pavement management system database to the City before the final meeting. The final meeting will be on-site to present the final pavement management plan to the City staff and/or the elected officials. A diagram of our proposed approach is depicted below:



The sections below detail how KCI would meet the City's needs in carrying out the project.

4.2.2.1 A detailed outline of proposed methodology to complete the project including a high-level timeline and brief descriptions of the key tasks, key milestones and key deliverables

TASK 1.0 – KICKOFF MEETING AND RECORDS REVIEW

KCI understands the importance of planning and preparation at the onset of a project. KCI will coordinate with the City for a project kickoff meeting to confirm the scope, extent, and contents of the project as well as the following items:

- Project management
- Scope, project schedule, and milestones
- Data provided by the City
- Previous maintenance programs and practices
- Pavement construction history
- Software options and integration with City's GIS
- Field pilot for pavement data collection and quality verification
- Deliverables

KCI believes communication is the key to a successful project. Our Project Manager, Dr. Islam, will work with the City to schedule monthly project coordination meetings and define channels for communication between the KCI team and City staff.

After receiving the street centerline database from the City, we will generate GIS layers and maps for use by the Digital Survey Vehicle (DSV). If necessary, we will also digitize or import any new streets that may have been recently constructed and/or accepted by the City. At this stage, we will:

- Create a pavement database using the existing centerline data.
- Maintain the unique identifier of each of the road segments.
- Maintain a persistent link to the GIS data

We will confirm the roadways and mileage with the City before collection. The finalized road network will be loaded into the ICC Connect software to define what needs to be collected and delivered, eliminating routing problems and location errors.

TASK 2.0 – AUTOMATED PAVEMENT FIELD DATA COLLECTION AND PROCESSING

For pavement field data collection, KCI will partner with ESP to collect and process the City's pavement conditions with **fully automated 3D Laser Crack Measurement System (LCMS-2)** technologies. To complete the automated pavement condition assessment, the KCI team will use the state-of-the-art digital survey vehicles (shown below) equipped with the following:

- Our Pavement Condition and Asset Inventory survey vehicle combines state-of-the-art pavement collection and survey-grade mobile mapping sensors. **This allows us to gather pavement data, LiDAR asset mapping, and imagery for the City's entire network of roads from one mobilization.**
- The **3D LCMS-2 camera is a downward-facing laser array providing images used to evaluate data with ASTM D6433 protocols**. It uses two 1-millimeter-pixel resolution line scan cameras to provide a customized digital condition rating system to collect user-defined severity/extent-based pavement distresses and rutting.
- Pavement distress type, severity, and extent are collected with the 3D LCMS-2 and are used to calculate a PCI score between 0-100, representing the condition of 100% of the driven lanes.

- Teledyne **Ladybug 5+ 30 MP spherical 360-degree imagery system** provides unequaled, unobstructed imagery of the complete road right-of-way for accurate roadway asset capture, extraction, and assessment.
- A class 1 inertial profiler for simultaneously capturing dual-wheel path (left and right) International Roughness Index (IRI) measurements to the hundredth inch, in accordance with AASHTO R48.

- Linear distance measuring to within +/-0.5%, and Applanix POS/LV with DGPS (**provides GPS accuracy +/- 1 foot or better**).
- All subsystems are integrated using ICC's collection core with tight synchronization between all data streams on the truck in real-time, referenced to both time and distance, providing the client with the highest quality pavement data collection available.

The methods for automated data collection and pavement condition rating are repeatable and defensible. Other essential features of the automated pavement data collection are:

- The images will be collected at 20-feet intervals (or chosen by the City) as 360 degrees right-of-way panorama, including forward, rearward, and downward pavement viewing images.
- We conduct pavement survey work on dry pavement and in lighting conditions that improve the accuracy of crack detection.
- We collect imagery during daylight hours, with no rain, fog, or snow visibility obstructions.
- Any road segment(s) that exhibit low image quality due to lighting will be recollected.

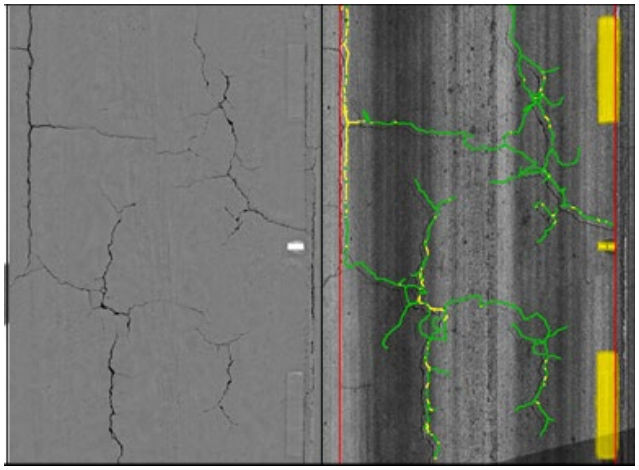
TASK 2.1 – FIELD PILOT

During the project kickoff meeting, KCI will determine with the City a pilot area of approximately 10 miles. City staff will review all deliverables for the pilot area. The pilot allows the KCI team to collect, process, and review condition data with City staff to confirm the accuracy of the data collection and interpretation protocols. The review of the condition data will be facilitated by our Project Manager, Dr. Islam, in the field, where they will review site conditions with City staff.

TASK 2.2 - PAVEMENT CONDITION DATA PROCESSING

Data collected in the field is imported using the AI pavement rating tool Road Technical Rating Intelligence Program (TRIP™). At this stage, we process the data, such as generating right-of-way and pavement image streams, calculating profile, determining International Roughness Index (IRI) and rutting, detecting rutting, patching, distortions, raveling, bleeding and all modes of cracking, lane markings, man-made objects, and other distresses. The automated crack analysis detects cracks that are then overlaid on the pavement images and offset to assist with verifying the detected cracks. We will follow ASTM D6433 methodology to determine the severity levels and verify for resolution through visual quality control checks of image files. Where crack density metrics are required, these are determined using the interval length and the width of road zones.

The pavement distress (type, severity, and extent) data will be loaded into the City approved pavement management software to calculate PCI values for each pavement section. Each section will be rated based on the PCI scale of 0 to 100, where 0 represents a failed roadway condition, and 100 represents an excellent/new roadway condition.



PCI Value	Pavement Rating
100	
85	Good
70	Satisfactory
55	Fair
40	Poor
25	Very Poor
10	Serious
0	Failed

We have experienced pavement inspectors performing visual field pavement assessments based on ASTM protocols. The same inspectors will perform QC to confirm the distresses and severity of the pavement condition data collected by the automated technology. This manual quality review is performed in accordance with the principles of the ASTM D6433 standard, using the LCMS pavement images gathered during the collection with the distresses superimposed and color-coded, such as what can be seen in the corresponding image.

TASK 2.3 – PAVEMENT CONDITION DATA QA/QC

Our philosophy and implementation of QA/QC enhances the standard Plan-Do-Check-Act (PDCA) cycle. We have a proven QA/QC procedure for all automated pavement data collection projects. **Quality is checked to reduce schedule disruptions and repeated work, so the City receives the precise pavement distress data and PCI values.** KCI understands quality is not added at the end of the project; it is the aggregation of the team's effort and each employee's work product. Our quality philosophy follows the same approach, as embodied in the following statements:

Better budgeting and maintenance planning start with better data

- **Be Responsible:** KCI employees and their subcontractors are responsible for the quality of their work daily and must communicate quality problems to the appropriate manager.
- **Two-Person Rule:** A second person competent in the subject will review essential work products and external communications before the product is transmitted to a customer.

Specific **quality control checks** will include:

- GIS checks of coverage from collected images to confirm no areas were missed.
- Visual image quality checks to check for acceptable focus and clarity.
- Data range checks for acceptable data from vehicle sensors.
- Start data collection at least an hour after sunrise, and stop data collection an hour before sunset
- Only survey clear and dry pavements

Specific **quality acceptance measures** will include:

- Regular correspondence with the City and doing a field pilot to review all collected information
- Submit all deliverables in draft form for review and feedback before final delivery.

DELIVERABLES

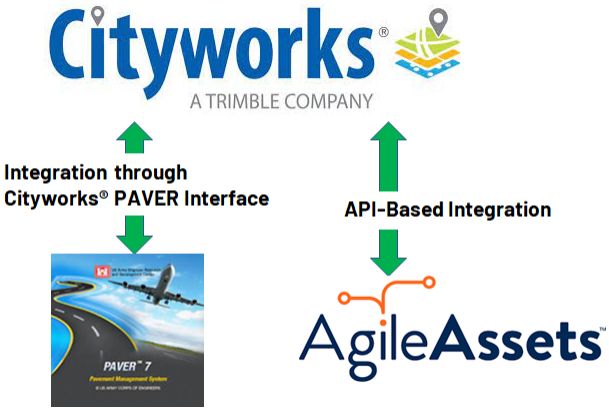
- GIS linkage- A Shapefile will be provided for all test data to allow for mapping based on PCI score or other data in the pavement management system. The pavement attributes included, but not limited to, are street name, segment length, segment width, Inspection date, surface type, functional classification, and PCI score.
- International Roughness Index (IRI) score for each street segment.

- Georeferenced high-quality right-of-way images (forward, left, right, and LCMS downward) images in an external hard drive and an Excel/GIS shapefile with hyperlinks to view the images.
- Presentation on PCI and condition data analysis to City staff.

TASK 3.0 – DATA ANALYSIS - PAVEMENT MANAGEMENT SYSTEM UPDATE AND IMPLEMENTATION

TASK 3.1 – PAVEMENT MANAGEMENT SYSTEM

During the project kickoff meeting, KCI will discuss and present the features and capabilities of two widely used asset management web platforms/software, web-based Pavement Express (by AgileAssets) and PAVER™, so that the City can select the appropriate software for its needs. PAVER™ is developed by the US Army Corp of Engineers and managed by the Colorado Paver Center, which requires a one-time purchase of $999.00. Pavement Express is a web-based Software as a Service (Saas) platform developed by Trimble-Cityworks-AgileAssests. The license fee is approximately $7,870/year, which has been determined by Trimble based on the number of populations of the City and the current subscription of Cityworks®. These tools meet the City's asset management software requirements and have various levels of capabilities and will allow the City to integrate and maintain an inventory, analyze condition data, track construction history, and conduct multi-year analysis. Pavement Express is fully pre-configured and allows agencies to be up and running within days. There is a high level of configurability available if desired, including:

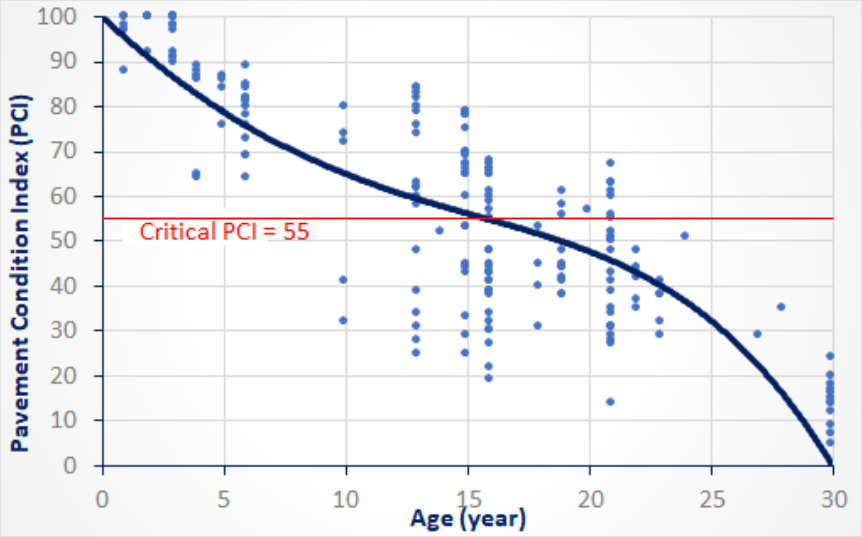


- Performance Models & Decision Trees
  - Predict future levels of service for specific pavement areas to help determine the best maintenance strategies. Pavement Express calculates Pavement Condition Index (PCI) according to ASTM D-6433.
  - Apply the City's expert opinion in the decision process by specifying treatment types, application intervals, level of application, costs, and more.
- Optimized Work Plans
  - Define budgeting and performance scenarios that account for various funding levels, timelines, roadway surface types, and more.
  - Turn analysis results into optimized work plans that you can tailor to the City's priorities.

KCI will load the pavement conditions data into the City approved PMS and customize it to reflect the City's current maintenance and rehabilitation practices. KCI will perform pavement condition analysis, develop pavement performance models, develop budget/condition-related 'what-if' scenarios, and a multi-year pavement rehabilitation plan as described in the following sections:

TASK 3.2 – PAVEMENT PERFORMANCE MODELS

The primary step in pavement repair and budget/condition scenarios analysis is to develop pavement performance models to predict the pavement network's future condition and rehabilitation timelines. The pavement performance modeling process identifies and groups pavements of similar construction and is subjected to similar traffic patterns, weather, and other factors that affect pavement life. We can develop pavement performance models based on traffic, surface type, functional class, and use. **We will also use the City's historical pavement condition data to develop robust pavement performance models**. We will present the models to the City for review and update based on local knowledge of the treatment's expected service life. The figure shows a sample pavement performance model that was developed for low-traffic, collector, and asphalt-surfaced pavement.



A Sample Pavement Performance Model

TASK 3.3 – PAVEMENT TREATMENT DECISION MATRIX

KCI will work with the City to develop a maintenance and rehabilitation program and provide recommended treatment for each road with estimated costs. KCI will configure the pavement management system with the treatments and their unit costs. The system will also be configured with treatment selection criteria to define when a particular treatment is applied and its consequences on pavement conditions. The treatment selection can be based on the PCI, particular distress, traffic, and functional class to incorporate the City's pavement preservation goals. KCI will work with the City to include new pavement preservation and maintenance techniques recommended by the GDOT and based on local experiences. The table below shows a sample maintenance and rehabilitation program that was developed for a city utilizing both PCI and structural condition index (SCI), developed based on the Falling Weight Deflectometer (FWD) testing.

		Structural Condition Index (SCI)			
	SCI × 100	100 - 90	89 - 80	79 - 50	49 - 0
PCI Rating	PCI Value	Very good	Satisfactory	Fair	Poor
100 Good	100	Do Nothing			
	90	Crack Seal and Distress Repair/Rejuvenator i.e., Reclamite			
85 Satisfactory	80	Pavement Preservation i.e., A5 High Density Mineral Bond (HA5®) and Donelson Construction Pressure Pave (PressurePave®)			Patching/Distress Repair
70 Fair	65	Patching/Distress Repair		Defer Improvement	
55 Poor	55	2.0" Mill & Overlay	2.0" Mill & Overlay	2.0" Mill & Overlay	4.0" Mill & Overlay
40 Very Poor	40	4.0" Mill & Overlay	4.0" Mill & Overlay	4.0" Mill & Overlay	Reconstruction
25 Serious					
10 Failed					
0	0				

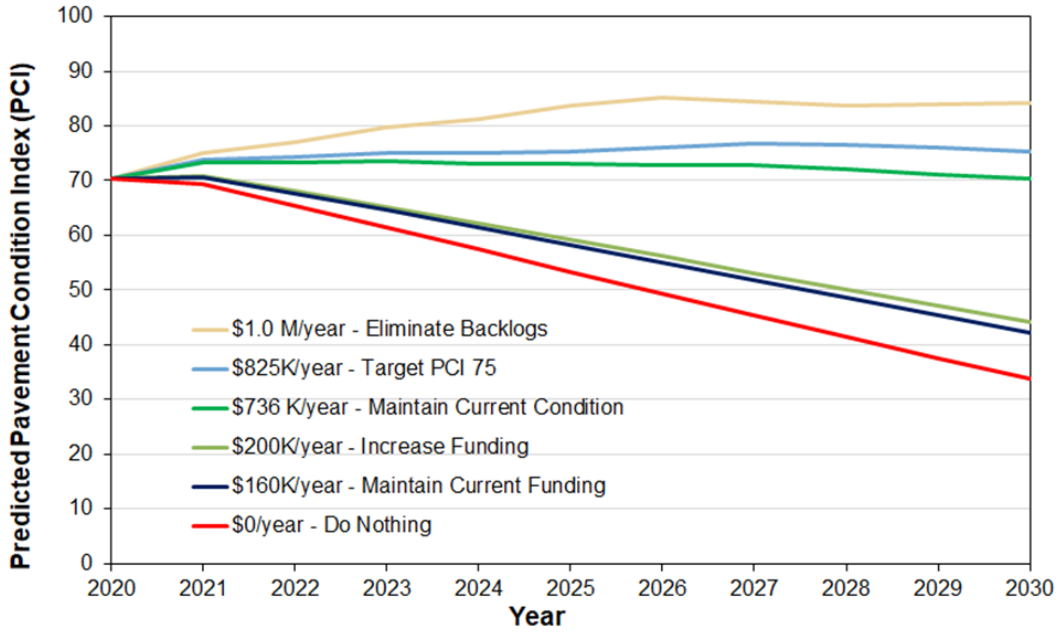
TASK 3.4 – MULTI-YEAR AND MULTI-CONSTRAINT OPTIMIZATION OF REHABILITATION STRATEGIES AND COSTS

KCI's data-driven rehabilitation needs and budget scenario analysis leads to a more effective, efficient, and productive organization and high-performance pavement management systems to create custom scenarios that help investigate different target conditions and funding levels. The analysis will provide the desired outcome for the City, such as understanding the system's current conditions, performance trends, and confirming the best pavement management strategy based on the PCI value ranges and specific distress type and severity levels. KCI can also generate the following 'what-if' analysis based on available/targeted budgets and conditions:

- Eliminate backlogs
- Maintain the current annual budget
- Budget required to achieve a target condition
- Balanced option based on a combination of the factors shown left
- Add moderate funding relative to current funds

Based on the City's selection of the pavement management software (PAVER™ or Pavement Express®) and its analysis capabilities, we can also perform the following multi-constraint optimization analysis:

- Able to analyze a variety of scenarios to determine future funding needs, alternative repair options, and optimized work plans which provide a maximum benefit for defined constraints
- Force certain roadways to be rehabilitated in a determined year to correspond with a utility project or other priorities in the City. The KCI team will work with the City to determine the work performed and incorporate it in the analysis as 'committed projects.
- Exclude certain roadways from the analysis that will be resurfaced or reconstructed by other means (such as part of a federally funded project, part of a future development project, etc.).
- Categorize the roadways into groups for analysis, such as arterials, collectors, local roads, etc. Custom funding can be allocated for the maintenance and rehabilitation (M&R) of these groups.



A Sample Budget Scenario Analysis

The budget scenarios to be included will be finalized in consultation with the City, and the final recommended scenario will be utilized to develop a multi-year maintenance and rehabilitation plan. The program will include recommended preventative maintenance amounts, costs, and other pavement preservation strategies.

TASK 3.5 - FINAL REPORT AND DELIVERABLES

- Data Upload - All field data shall be processed and provided in an updated database. The selected firm will load the updated field data, transfer existing historical data, and verify that the data continues to provide all elements necessary for inventory, condition, maintenance and rehabilitation strategies, budgeting, and multi-year plans.
- A written final report including project summary, discussion of network conditions and findings utilizing charts and graphics, analysis of the City's current pavement management process, rehabilitation plan and budget analysis, funding scenarios, and street inventory and condition summary.

Project Timeline and Key Milestones

We are proposing a preliminary schedule for four months to complete the pavement condition evaluation, budget scenario analysis, and development of a three-year rehabilitation plan. We are local and our automated pavement data collection partner is only about three hours away from the City of Dunwoody. We can meet the City's expectation of collecting, processing, and analyzing the data to develop multi-constraint budget scenarios and a multi-year plan.

	2023			
	April	May	June	July
TASK 1 - Kickoff Meeting & Records Review				
TASK 2				
TASK 2.1-2.2 - Pavement Data Collection & Processing				
TASK 2.3 - Pavement Data QC/QA, PCI Presentation to the City, Deliver PCI Maps and Image Geodatabase				
TASK 3				
TASK 3.1 -3.3 Pavement Management System Selection, Load Data, and Configuration for Analysis			AgileAssets	
TASK 3.4 Multi-Constraint Budget Scenario Analysis and Development of Multi-Year Plan			AgileAssets	
TASK 3.5 Final Report and Deliverables				

4.2.2.2 State the proposer's belief of the scope of the intended strategy within the City. If there are any gaps between what the proposer believes should be the proper scope of the services given all information known at the time of this RFQ, the proposer should clearly state these gaps in this section and clearly mark these concerns as such.

Pavement Condition Data Not Currently Integrated with the City's Cityworks® Platform

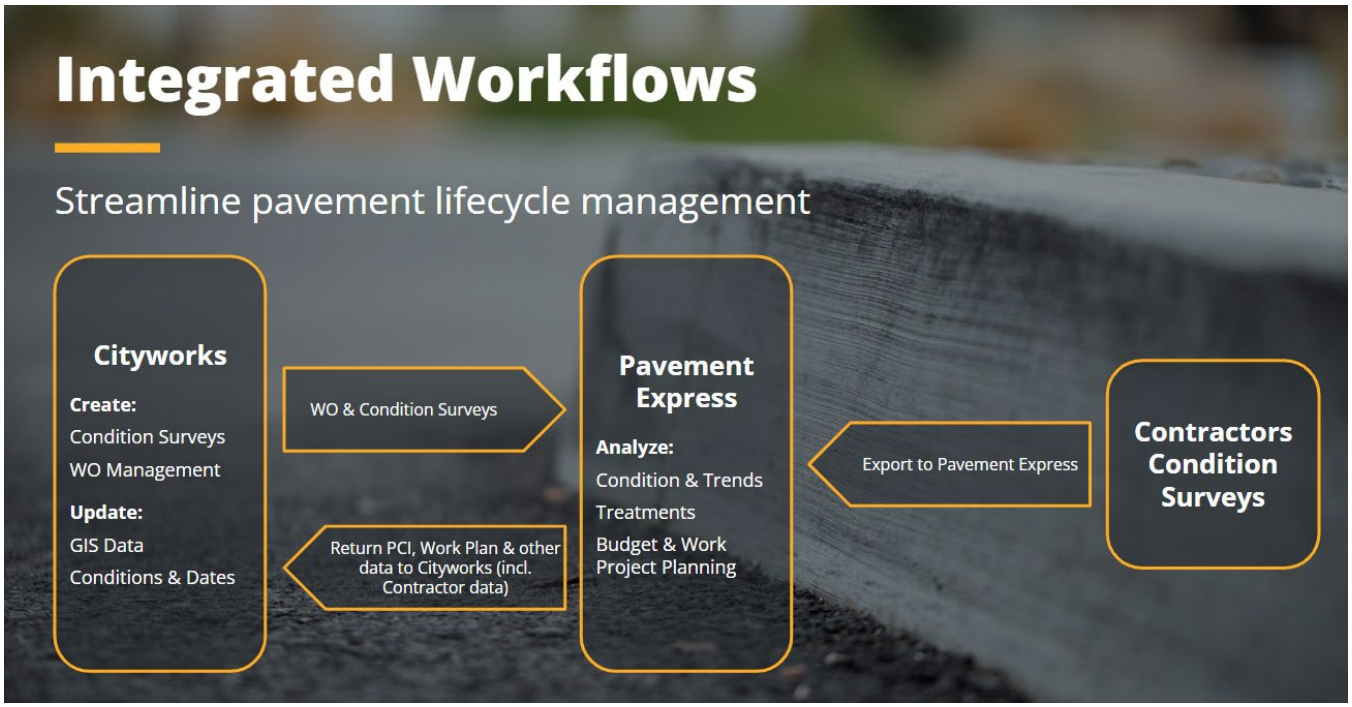
We understand that the City of Dunwoody has implemented the Cityworks® asset management platform and SeeClickFix platform to report pavement-related issues but that these two systems are not currently integrated with the City's pavement condition data as part of a comprehensive pavement management system (PMS). The City's currently utilized PavePRO Manager software provides limited capabilities for running multi-constraint budget scenario analysis and cannot be integrated with the Cityworks® platform. Without integration, valuable Cityworks® work order system and pavement management system data such as pavement inventory, work orders, and inspections and SeeClickFix reports cannot be efficiently incorporated into PCI scoring and cannot be easily synthesized to drive decision making and project planning.

KCI would propose that the City of Dunwoody consider, as part of the scope of the services contained within this RFQ, transitioning to a more widely-used and industry-standardized pavement management software system capable of integrating with both Cityworks® and SeeClickFix. Two widely used pavement management systems include PAVER™

and Pavement Express® by Trimble. Each of these systems can easily integrate maintenance and repair work from the Cityworks® work order management system and the SeeClickFix platform and are described in further detail below.

Currently, Cityworks® maintains a seamless integration interface with PAVER™, a desktop-based and GIS-compatible PMS. Paver Interface 2.2 is a Cityworks® add-on designed for organizations that use PAVER™ and Cityworks® provides the work management system and access to the geodatabase for PAVER™ through the interface. Pavement inventory is managed within the geodatabase and exported to PAVER™ via the Cityworks® interface, which links the geodatabase fields to corresponding fields in PAVER™. The Pavement Management Interface also provides a communication link between Cityworks® and PAVER™ to pass information back and forth between the two programs.

Trimble Inc., the developer of Cityworks®, has acquired AgileAssets, Inc., the developer of Pavement Express, and is implementing an API-based integration between Cityworks® and Pavement Express. Given its capability for integration with Cityworks®, Pavement Express would also be an excellent alternative to the City's current pavement management system software. The integrated workflows of Citywork® and Pavement Express® are shown below:



4.2.2.3 Discussion of the assumptions relating to the responsibilities and/or commitments the proposer is expecting of the City throughout the life of this project.

KCI will require the following support from the City to complete this project efficiently and effectively:

- Provide current roadway geodatabase/GIS shapefile and network segmentation
- Review, if necessary, the final roadway geodatabase, maps, and segmentation before field data collection
- Provide, if available, pavement type, pavement construction history, age, and traffic information
- Review the pavement management software options based on the City's need
- Provide City's current pavement maintenance and rehabilitation activities and the cost associated with past pavement improvements, if available.
- Review the selected pavement management system customization to confirm the specific practice and procedures currently in use
- Provide City's annual pavement maintenance and rehabilitation budget
- Provide 'what-if' scenarios to run the analysis
- Review draft pavement rehabilitation plan and selected candidates

4.2.3

SECTION III

4.2.3 SECTION III – CASE HISTORIES

The KCI team will leverage its previous pavement management experience to help the City assess the pavement, develop a plan for maintenance and repairs, and extend the life of the pavement to increase safety and driving experience. Our team's relevant projects and references are as described below:

PAVEMENT CONDITION RATING AND FIVE-YEAR CIP DEVELOPMENT *Milford, DE*

CLIENT CONTACT
City of Milford
James Puddicombe
302.422.1110 x 1108
jpuddicombe@milford-de.gov

KEY STAFF
Shahidul Islam, PhD, PE – Project Manager

SERVICES PROVIDED
Pavement Assessment
Five-Year CIP

PROJECT DURATION
2022

PROJECT BUDGET
$30,849 (KCI fee)

PROJECT OVERVIEW

The City of Milford's Department of Public Works engaged the KCI team to help them implement a PMS. The City desired a system to record historical pavement condition data and develop a five-year capital improvement plan objectively, which motivated the City to invest in new, industry-standard, pavement management system implementation. In addition, the City desired to implement a comprehensive asset management program to strengthen business and infrastructure decision-making and provide defined levels of service to customers. This project aimed to reinforce the organization's future readiness through strategic planning and documentation.

Automated Pavement Condition and Thickness Data Collection

KCI collected georeferenced images of the City's entire roadway network using the DSV equipped with the LCMS and Ground Penetrating Radar (GPR), georeferenced 360-degree images of the right-of-way. Each image is linearly referenced with the DSV's onboard distance measuring instrument (DMI) and associated global positioning system (GPS) coordinates. The DSV also collected GPR data of all the pavement sections simultaneously.

PCI Determination and Recommendations on Rehabilitation

KCI conducted the pavement assessment based on the ASTM D6433 PCI Surveys methodology to determine the PCI value for each pavement section. KCI established a database of pavement conditions, including PCI for each street, on a scale from 0 (poorest) to 100 (excellent). KCI recommended annual maintenance and rehabilitation activities budgets, assuming different conditions/budget scenarios. KCI established proper rehabilitation and preventative maintenance strategies, including appropriate treatments such as slurry seal, chip seal, overlay, and complete reconstruction. KCI provided estimated costs for the recommended improvements in a five-year forward capital plan. The final report also included a condition analysis, different levels of investments, and recommendations on pavement preservation.

ESP TOWN OF INDIAN TRAIL PAVEMENT & ASSET INVENTORY *Columbia, SC*

CLIENT CONTACT
Town of Indian Trail
Todd Huntsinger
704.821.5401
tdh@indiantrail.org

KEY STAFF
Brad Adams, PE – Project Manager,
Brian Moravec – Pavement Data Collection Manager

SERVICES PROVIDED
Pavement Condition Analysis and Asset Inventory

PROJECT DURATION
2021 - 2022

PROJECT BUDGET
$63,800

PROJECT OVERVIEW

Initially, The Town of Indian Trail submitted a solicitation that did not require a technology-based solution. The Town only required an initial, segmented pavement condition analysis to plan and maintain 77 miles of roads. ESP proposed an approach like this response for a full, automated sensor approach. ESP deployed our Multi-Sensor Pavement and Asset Inventory van with a Digital Laser Profiler, 3D LCMS, and a Trimble MX 9 mobile mapping unit to collect all the pavement information and capture all the city assets in the road right-of-way.

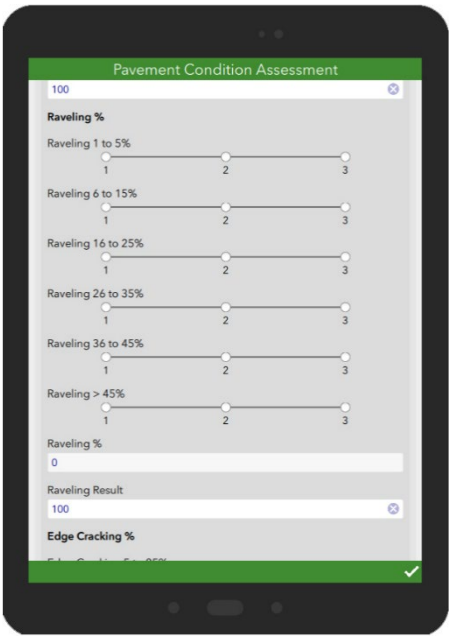
ESP performed comprehensive data collection of pavement and asset data within a single mobilization and calibrated it in line with previous ratings obtained from a city-conducted visual inspection. A complete PCI report was then provided for input into Micro Paver 7.0, enabling the City to take full advantage of the benefits, principles, and techniques of a professionally managed pavement program. In addition to maintaining and extending the life of pavement surfaces, this foundation of accurate and precise data allows the City to mine additional asset and survey-quality data for years to come. ESP produced a full PCI report for the pavement conditions as required by the Town. Because of their innovative approach, ESP was also able to provide a full inventory of all the signs, sidewalks, and curb and gutter within the Town's pavement budget.

PAVEMENT CONDITION ASSESSMENT *Franklin County, GA*

REFERENCE	KEY STAFF	PROJECT DURATION
Franklin County John Phillips PE, County Engineer 706.384.2483 jphillips@franklincountyga.gov	Amanda O'Shea – Project Manager **SERVICES PROVIDED** Pavement Assessment	2019-2021 **PROJECT BUDGET** $18,308 (KCI fee)

PROJECT OVERVIEW

Responsible for more than 250 miles of paved roadways, Franklin County contracted KCI to perform condition assessments of these assets and capture that data electronically for future use in maintenance, asset management, and public relations. KCI developed an application based on the Georgia Department of Transportation's PACES. The County provided KCI with a street network file, which served as the base to establish the data. Then developers used commercially available tools like ArcGIS and Survey 123 to set up the database, field form, web maps, and web/mobile application. Using major intersections as starting and stopping points, the roadways were broken down into segments to be easily surveyed. Users then could select a segment of roadway on a map and answer a series of questions pertaining to the amount and severity level of distress in the pavement. An overall rating for that segment was then determined. Each assessment was then linked to the corresponding location on the map, where it could be easily accessed. The application helped our team expedite the physical inspection of each pavement section and score the condition electronically in real time. Dashboards then give officials quick access to analyze the data.



4.2.4

SECTION IV

4.2.4 SECTION IV – STAFF EXPERIENCE AND QUALIFICATIONS

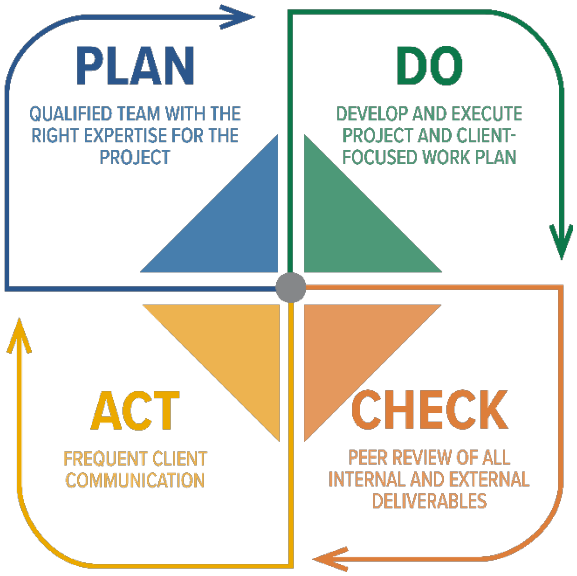
Project Management: Dr. Islam will be KCI's Project Manager and Andrew Antweiler, PE, PTOE will be the Local Liaison during this contract. Dr. Islam will be the City's primary point of contact and responsible for staff and resource allocation; task execution; subcontractor management; QA/QC enforcement; cost/schedule controls; and monthly progress reports and invoices.

Contract work will require regular interaction with the City personnel. Maintaining lines of communication is therefore critical to providing effective service to the City.

Task Execution and Management: When the City requests service, Dr. Islam will assign a Task Manager to manage daily aspects of the task. He will review the scope of work and schedule and submit a work plan describing the scope of work, staffing, man-hour and cost estimates, and schedule within three working days of the task order request. KCI will begin the assignment within three working days of receiving NTP. For emergency work, KCI will respond within four hours of the request.

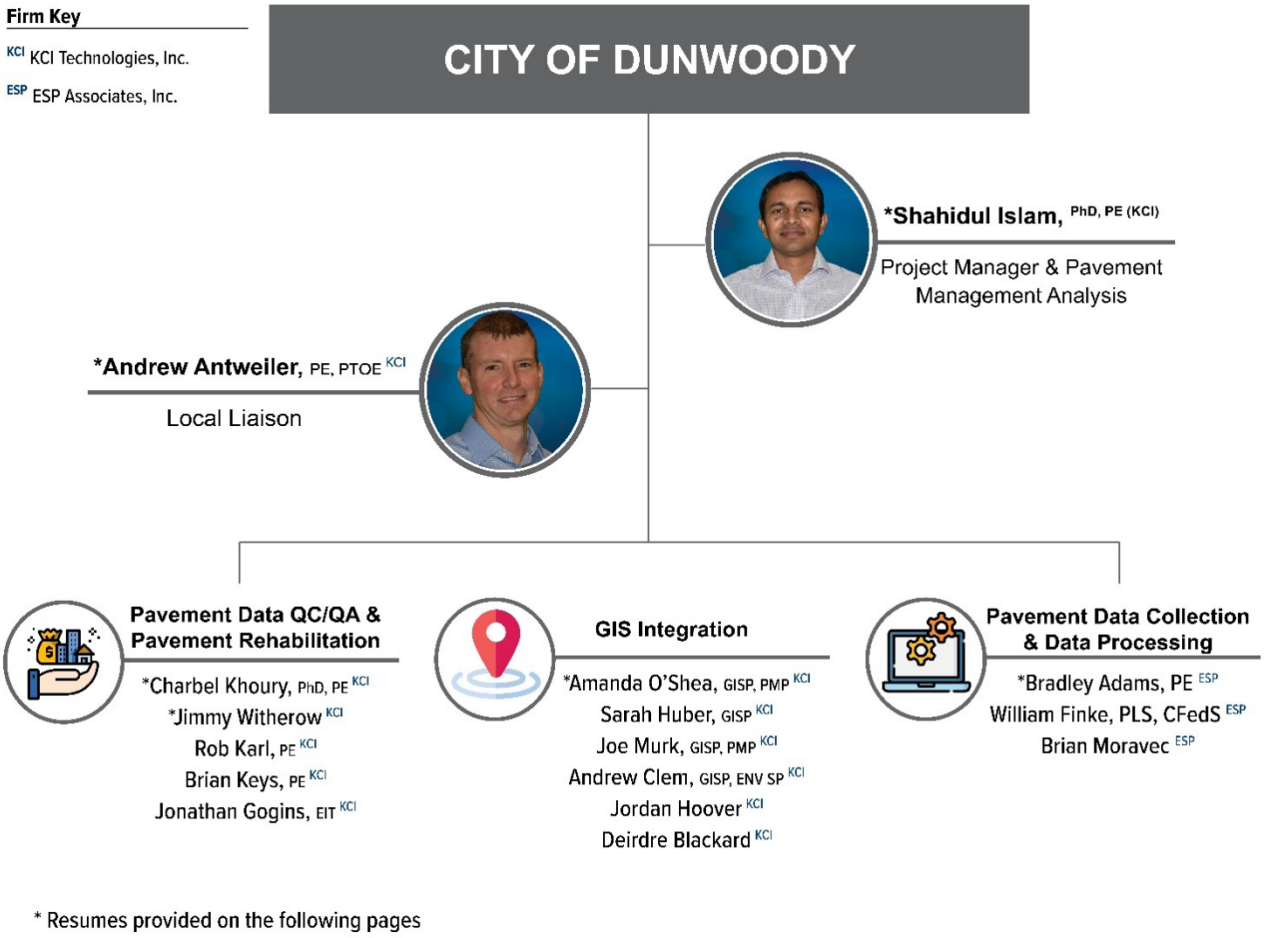
Subcontractor Management: Upon contract award, KCI will execute subcontract agreements with each subcontractor. The subcontract agreements require subcontractors to comply with the provisions of the contract between the City and KCI. Dr. Islam will maintain all subcontracting relationships.

QA/QC Procedures: KCI's QA/QC procedures are certified to the ISO 9001:2015 standard. Initially the Project Manager will issue a Task Memorandum describing the scope, budget, staffing, lines of communication, schedule, and design criteria. During the project, senior staff check deliverables for accuracy, clarity, and constructability. All team deliverables will be subjected to KCI's QA/QC review process. KCI continually monitors execution of QA/QC procedures, and annual third-party audits confirm compliance.



Staffing Plans: Our team has overlapping and redundant design capabilities in all work categories that allow the flexibility to adjust staffing levels to meet milestone deadlines. Dr. Islam has defined a core management staff that includes Mr. Antweiler as our Local Liaison.

On the following page is an organizational chart outlining the KCI team, led by Dr. Islam, and the breadth of resources that KCI brings to the table to complete the project objectives on a timely basis within the agreed-upon budget for the City's Pavement Condition Assessment project.

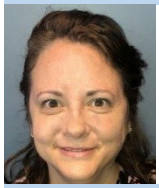


* Resumes provided on the following pages

Key Personnel Resumes

The success of any project is dependent on the quality and experience of the overall team as well as individual project personnel; therefore, KCI selected key staff to highlight based on their experience with pavement condition assessment, preventive maintenance and rehabilitation strategies, pavement preservation, pavement management, GIS integration, and their ability to transfer knowledge through formal and informal training. In addition, KCI has a team of 50+ highly qualified, diverse experts to leverage as needed. Bios of our key staff are provided below.

Resumes for key personnel are included on the following pages.

Key Staff, Role, Years of Experiences	Summary of Experience
 **Andrew Antweiler, PE, PTOE** Local Liaison KCI Technologies, Inc. Experience: 22 years	**Mr. Antweiler is currently working with the City for the pedestrian safety action plan update.** He has over 25 years of experience in transportation engineering. He will be the primary contact for development of scope of work, kickoff, and team coordination. Available for on-site meetings to facilitate communication and coordination between the KCI and the City staff.
 **Shahidul Islam, PhD, PE** Project Manager KCI Technologies, Inc. Experience: 14 years	Dr. Islam will lead and coordinate the services needed for the pavement condition assessment, pavement maintenance and rehabilitation strategies, multi-year capital improvement plan generation, and presentation at the Board meeting.
 **Charbel Khoury, PhD, PE** Pavement Maintenance and Rehabilitation KCI Technologies, Inc. Experience: 22 years	Dr. Khoury's expertise includes pavement material studies, structural design, pavement management, treatment strategies and budget scenarios. He has worked on multiple highway infrastructure projects designing pavement and geotechnical structures.
 **Amanda O'Shea, GISP, PMP** GIS Integration Lead KCI Technologies, Inc. Experience: 23 years	Ms. O'Shea has expertise in Esri technologies including field mobile collection applications, ArcGIS Online, ArcGIS Server, and ArcGIS Pro. She keeps up to date with Esri's technology roadmap and leads efforts to migrate clients into these new frameworks.
 **Sarah Huber, GISP** GIS Integration and Asset Management KCI Technologies, Inc. Experience: 17 years	Ms. Huber has experience supporting user-friendly field data collection applications, survey forms, and maps for operators and business intelligence dashboards, AGOL web applications, workflow analysis, asset condition assessment, and asset management plans for strategic decision-makers.
 **Brad Adams, PE** Pavement Data Collection and Processing Manager ESP Associates, Inc. Experience: 35 years	Mr. Adams has been working closely with state and municipal agencies since 1990, providing engineering, asset inventory, surveying, aerial mapping, aerial lidar, static LiDAR, mobile mapping, software development, and technology implementation services.
 **Jimmy Witherow** Pavement Condition Data QA/QC KCI Technologies, Inc. Experience: 32 years	Mr. Witherow has experience in developing pavement inventory, and leading pavement field assessments to determine pavement conditions, and other right-of-way assets.

SHAHIDUL ISLAM, PHD, PE

Project Manager & Pavement Management Analysis

Dr. Islam has more than 14 years of experience in developing, implementing, and maintaining pavement management plans to outline investment priorities for pavements and other transportation assets. He was responsible for maintaining the pavement management system for the Illinois State Toll Highway Authority network for the last five years. His responsibilities included pavement condition assessment, remaining service life determination, and multi-year pavement management plan development. He led the pavement data collection and pavement management system implementation for 25+ agencies. He managed pavement management system implementation for 20 agencies under Chicago Metropolitan Agency for Planning (CMAP). Dr. Islam serves as a member of the Infrastructure System Committee of ASCE and TRB's Standing Subcommittee AKP10(1) on Innovations in Pavement Condition Evaluation.

Education

PhD / Civil Engineering
MS / Civil Engineering
BS / Civil Engineering

Registrations/ Certifications

PE / NC / 053150
PE / MD / 58526
PE / VA / 0402064458
PE / TX / 131232

Years Experience

14

Illinois State Toll Highway Authority (ISTHA), Pavement Management System Implementation – Statewide, IL. Task Manager. Dr. Islam was the task manager for maintaining the pavement management system for the client's entire network using Cartegraph OMS. His responsibilities include pavement condition assessment of the entire network using the condition rating survey (CRS) methodology. Dr. Islam was responsible for processing profile and sensor data and compiling data sets such as surface distress, roughness, rutting, and faulting. He also developed and calibrated pavement performance models based on pavement types and roadway functional classes. Dr. Islam also updated the hot-mix asphalt (HMA), jointed concrete pavement (JPCP), and continuously reinforced concrete pavement (CRCP) repair manual for the Illinois Tollway system.

Chicago Metropolitan Agency for Planning (CMAP), Pavement Management System Implementation – Chicago, IL. Project Manager. Dr. Islam led this effort to assess the current pavement condition and scenarios evaluating the cost to meet different network-level pavement conditions and recommended a 5-10-year capital pavement program based on the selected pavement condition and budgets using PAVER ™. The project included collecting pavement condition data for 20 villages, cities, and counties, developing pavement condition prediction models, a pavement treatment matrix, and pavement preservation plans.

City of Milford, Pavement Management System Implementation – Milford, DE. Project Manager. Dr. Islam led this effort to assess the current pavement condition, implementing a pavement management system (PMS) and recommending a five-year capital improvement plan (CIP) based on the available budgets and goals. The project included pavement condition evaluation for approximately 50 miles of streets using an automated LCMS, PCI, and IRI determination, the development of pavement condition prediction models, pavement treatment matrix, and pavement preservation plans.

Town of Lyman, Pavement Condition Assessment and Capital Improvement Plan – Town of Lyman, SC. Project Manager. Dr. Islam led the effort of a complete inventory and condition assessment of about 66 centerline miles within the Town's jurisdiction and to develop a pavement maintenance plan that will result in the greatest return on investment. He developed pavement performance models to forecast future conditions and recommended maintenance and rehabilitation activities assuming different condition/budget scenarios.

CHARBEL KHOURY, PHD, PE

Pavement Maintenance and Rehabilitation

Dr. Khoury is KCI's Practice Leader for Pavement Engineering services, with 22 years of experience in pavement and geotechnical engineering. His expertise includes pavement material studies, structural design of pavement, pavement management, and treatment strategies and budget scenarios development. He has worked on multiple highway infrastructure projects designing and implementing subsurface field investigations, analyses, and designs of pavement and geotechnical structures. Dr. Khoury brings a wide range of multidisciplinary experience from various research studies and state DOTs experience nationwide in pavement management and design. He spearheaded a five-year research project funded by FAA and Oklahoma Aeronautics Commissions performing Pavement Management and Engineering services for more than 70 general aviation and municipal airports. Dr. Khoury is proficient in performing modeling and analyses of pavement network system and developing of maintenance and rehabilitation strategies. He is a member of the Transportation Research Board and American Society of Civil Engineers and has more than 20 technical papers in geotechnical and pavement engineering applications published in engineering journals and conferences.

Education

PhD / Civil Engineering
MS / Civil Engineering
BS / Civil Engineering

Registrations/ Certifications

PE / GA / 041648
PE / VA / 0402052842
PE / MD / 45287
PE / NJ / 24GE05069600
PE / DC / 908845
PE / TX / 130394

Years Experience

22

DDOT Pavement Engineering, Subsurface Investigation and Management Support Services (Two Contracts) - Washington DC. Project Manager. Under these $2.5M contracts with DC DOT (DDOT), Dr. Khoury is managing the pavement engineering, field investigation, and asset management services supporting DDOT for their roadway pavement. Dr. Khoury has managed these contracts performing pavement engineering design, identifying and recommending cost-effective pavement treatment options, developing and performing pavement and subsurface investigation for required roads, and pavement design with specifications and construction costs.

MDOT SHA Pavement Services Tasks - Geotechnical Exploration and Testing Services - Statewide, MD. Project Manager. Dr. Khoury has managed multiple task orders under this $3M on-call contract, including field pavement/geotechnical and subsurface field investigation and non-destructive services, and report preparation. Specifically, he managed projects relevant to pavement engineering that ultimately supported the PAGD and OHD through FED for TSMO projects. Services included a GPR survey for TSMO corridor limits along state routes and interstates including MD5, MD 210, US 301, I-70, U 29, MD 100, I-95, I-97, US 40, and MD 32 for 325 lane miles; and 100 lane miles along I-695 to investigate the pavement condition and structure of existing shoulders.

MDOT MDTA I-695 Baltimore Beltway (Francis Scott Key Bridge) Pavement Engineering and Assessment - Statewide, MD. Project Manager. Dr. Khoury coordinated with MDTA and the design team and performed pavement engineering for the Francis Scott Key Bridge facility within the major route of I-695 (40 lane miles of pavement). Dr. Khoury reviewed the network condition assessment data including Pavement Condition, International Roughness Index (IRI), Cracking Index, Rutting and Friction (Skid Number). He developed and performed further pavement and subsurface field investigations including pavement condition survey and coring/boring, and ultimately recommended the most cost-effective preservation treatment options for the pavement. He performed structure design of pavement and prepared specifications and special provisions as well as engineering cost estimates and bid items for construction.

JIMMY WITHEROW

Pavement Data QA/QC

Mr. Witherow spent over 35 years working in GDOT Maintenance, 24 of those years spent in D6 maintenance operations beginning as a Maintenance Worker. Before leaving the District, he had advanced to the position of Assistant Maintenance Engineer. He then worked statewide for the State maintenance office as a Maintenance Liaison, serving as a subject matter expert for state maintenance operations. Following that, he served as District Maintenance Engineer in D1. Later he was selected for the position of Assistant District Engineer in D7. In 2017, he retired from GDOT and joined the KCI team. Combining his GDOT experience and his KCI accomplishments, he has worked in multiple facets of maintenance activities and operations. His experience of performing on-the-ground operations along with budgeting and management has given him a unique perspective on how maintenance can develop and grow. Currently, he has been developing asset management tools for KCI and using these in local environments for collecting, mapping. and budgeting. This process utilizes his experience in asset assessments, GDOT ITB preparations, budget management, and creating digital pathways in a manner to bring this together.

Registrations/ Certifications

GSWCC Level 1A (Erosion Control)
Georgia Temporary Traffic Control (TTC) / Work Zone Safety
NASSCO Manhole Assessment Certification Program (MACP)
NASSCO Pipeline Assessment Certification Program (PACP)
NASSCO Lateral Assessment Certification Program (LACP)
WTCS Traffic Control Super

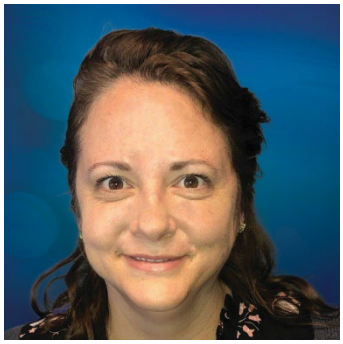
Years Experience

35

Pavement Condition Assessment – Elbert County, GA. Pavement Assessment Lead. Mr. Witherow was responsible for about 371 miles of paved roadways, contracted KCI to perform condition assessments of these assets and capture that data electronically for future maintenance and asset management use. Mr. Witherow conducted a pavement condition survey using a tablet application developed based on the GDOT's Pavement Condition Evaluation System (PACES). He collected pavement attribute data to update the County's GIS map and existing pavement distress type, severity, and extent.

Pavement Condition Assessment – Franklin County, GA. Pavement Assessment Lead. For about 252 miles of paved roadways, Franklin County contracted KCI to perform condition assessments of these assets and capture that data electronically for future use in maintenance and asset management. Mr. Witherow conducted visual condition survey using a tablet application. The goal of the condition survey was to identify and determine severity and extent of pavement distresses including fatigue cracking, block cracking, reflection cracking at PCC joints, transverse cracking, patching and potholes, rutting, shoving, and raveling.

Walker County Pavement Assessment – Walker, GA. Pavement Assessment Lead. This had been a two-part project beginning with the assessment of all roadways in Walker County and then an inventory evaluation of all cross-drainage pipes. Roadway assessments had included dirt, gravel, asphalt, and concrete roadways. Pipe assessments had been performed to identify all cross drainpipes and then assess the quality of those pipes. Mr. Witherow assessed roadways, which had included identifying the type of roadway and then rating that roadway based on the type of deficiencies that had been present. He conducted this assessment by inspecting the broken 357+ lane miles of roadway into 1,200+ segments and then inspecting each segment. The goal of his inspections had been to identify the percentage of each deficiency present in the segments, The deficiencies that had been assessed were load cracking, clock cracking, rutting, section loss, patches/ potholes, pushing, and raveling. The roadway width and the type of surface had also been recorded.



AMANDA O'SHEA, PMP, GISP

GIS Integration Lead

Ms. O'Shea is a project manager/pavement data integration GIS lead in KCI's Asset Management practice with 23 years of experience in developing GIS solutions. Her expertise includes geodatabase development, data architecting, GIS analysis, digital field data collection system design and implementation, project GPS setup and support, and quality control. Ms. O'Shea's computer skills include ArcGIS Desktop, ArcGIS Pro, ArcGIS Enterprise, Portal for ArcGIS, ArcSDE, ArcServer, ArcGIS Online, Collector for ArcGIS, Survey123, ArcPad, Microsoft SQL Server, Cityworks AMS, Cityworks PLL, Geocortex Essentials, Trimble Business Suite, GlobalMapper, and MapInfo.

Education

BS / Geography

Registrations/ Certifications

PMP / 3008601 / 2021

GISP / 57720 / 2009

Esri Enterprise Geodata Management Associate 10.1

Years Experience

23

Elbert County, Pavement Condition Assessment – Elbert County, GA. Project Manager. Elbert County contracted KCI to perform condition assessments on approximately 371 miles of paved roadways and capture that data electronically for future maintenance and asset management use. Ms. O'Shea developed an application based on the GDOT's PACES and used commercially available tools such as ArcGIS and Survey123 to set up the database, field form, web maps, and web/mobile application.

Pavement Condition Assessment – Cherokee County, SC. GIS Analyst. Cherokee County, responsible for about 361 miles of paved roadways, contracted KCI to perform condition assessments of these assets and capture that data electronically for future maintenance and asset management use. Ms. O'Shea developed an application based on the ASTM D6433 PCI determination methodology, to assess the type, severity, and extent of pavement distresses. She used commercially available tools such as ArcGIS and Survey123 to set up the database, field form, web maps, and web/mobile application. An Esri ArcGIS-based dashboard was developed to display pavement attributes and condition data.

Pavement Condition Assessment – Murray County, GA. GIS Analyst. For about 408 miles of paved roadways, Murray County contracted KCI to perform condition assessments of these assets and capture that data electronically for future use in maintenance and asset management. Ms. O'Shea developed an application based on the GDOT's PACES. She used commercially available tools such as ArcGIS and Survey123 to set up the database, field form, web maps, and web/mobile application. The inspection and ratings were made by KCI inspectors, including a former GDOT District Engineer and a former GDOT District Maintenance Engineer.

Pavement Condition Assessment – City of Chamblee, GA. GIS Analyst. The City of Chamblee, GA, responsible for about 90 miles of paved roadways, contracted KCI to perform condition assessments of these assets and capture that data electronically for future use in maintenance and asset management. Ms. O'Shea developed an application based on the GDOT's PACES and used commercially available tools such as ArcGIS and Survey123 to set up the database, field form, web maps, and web/mobile application.

BRAD ADAMS, PE

Pavement Data Collection & Data Processing Lead

Mr. Adams has been the lead for large geospatial, pavement, and engineering projects since 2001. He has worked closely with state and municipal agencies since 1990, providing engineering, asset inventory, surveying, aerial mapping, aerial LiDAR, static LiDAR, mobile mapping, software development, and technology implementation services.

Education

BS / Civil Engineering

Registrations/ Certifications

PE / TX / 79259

Years Experience

35

Pavement Inventory and PCI - Ontario Canada. Program Manager. 3,200 miles of pavement condition analysis for the cities of Ottawa, Kingston, and Peterborough, as a subconsultant to another firm.

Pavement and Asset Inventory and PCI - Town of Indian Trail, NC. Project Manager. 77 miles of pavement condition analysis and asset inventory, including a full PCI report for the pavement conditions, plus an inventory of all the signs, sidewalks, and curb and gutter in the town.

Pavement & Asset Inventory and PCI –City of Columbia, SC. Project Manager. 200+ miles of pavement condition surveys and full asset inventory of sidewalks, handicap ramps, and striping and pavement markings. ESP has deployed their Multi- Sensor Pavement and Asset inventory van with a Digital Laser Profiler, 3D LCMS, and a Trimble MX 9 mobile mapping unit to collect all the pavement information as well as capture all the city assets in the road right of way.

Bay City Pavement Inventory - Bay City, TX. Project Manager. ESP deployed its multi-sensor ICC Iris ProPAVE pavement collection van and to maximize the investment in collection, integrated our Leica Pegasus: two ultimate mobile mapping system to collect survey-grade LiDAR and associated imagery. The entire 106-mile project was collected in less than a week, updating the PCI scores for the roadways.

300 Mile Asset Inventory with Mobile LiDAR* – Huntington, WV. Principal-in-Charge. Comprehensive asset inventory of the entire City using mobile LiDAR. The collection was completed in five days and features were extracted in two months. The project delivered over 10,000 signs, 1,000 signals, 3,300 storm inlets, 250 tree planters, and almost 1,000,000 feet of sidewalks.

* Project performed prior to joining ESP

4.2.5

SECTION V

4.2.5 SECTION V – ADDITIONAL MATERIALS

Company Background

KCI's history can be traced to a small firm operating out of the basement of the co-founder's home in 1955. By its second year, the company took up residence in a proper facility, only to change locations several times over the next decade in a succession of moves that paralleled its growth. Today, our 2,000+ employee-owners operate out of nearly 70 offices in 21 states - as well as the District of Columbia. With revenues of about $368 million in 2021, the *Engineering News-Record* consistently places KCI among the top consulting engineering firms in the country.

KCI is a 100 percent employee-owned engineering, consulting, and construction firm serving clients throughout the nation. KCI's corporate vision is to be the professional consulting firm of choice for our employee-owners, clients, and business partners. KCI is constantly driven by energy, passion, and talent. We are a recognized industry leader, employing cutting-edge technologies, management practices, and strategic growth initiatives. The strong team we've built over the last 67 years operates as a single entity of technical specialists providing a collaborative, efficient suite of services across core markets. Our multi-disciplined offerings allow us to offer exceptional turnkey project delivery. Our people, projects, and organizational success have been honored with awards from some of the trade's most prestigious bodies.

KCI has expanded its presence to four Georgia offices, all of which are within 30 miles of the City. With more than 170 employee-owners located strategically throughout Georgia, our staff supports projects at the local, county, and state levels, as well as for universities, healthcare systems, utility providers, and a growing number of public and private clients.

Georgia Pavement Projects	Number of Miles
Pavement Condition Assessment – Elbert County, GA	371
Pavement Condition Assessment – Murray County, GA	408
Pavement Condition Assessment – City of Chamblee, GA	90
Pavement Condition Assessment – City of Toccoa, GA	87
Pavement Condition Assessment – Franklin County, GA	252
Pavement Condition Assessment – City of Decatur, GA	65

PAVEMENT EVALUATION AND MANAGEMENT SYSTEM IMPLEMENTATION

KCI team members have been instrumental in developing, customizing, and implementing PMS using PAVER™, Pavement Express® by AgileAssets, StreetSaver, and Cartegraph OMS, working closely with clients to gather the business and system requirements for the PMS throughout its implementation. The KCI team is well-experienced in developing performance models for the various condition measures collected, including IRI, rutting, cracking, and friction. The KCI team has also been involved in budget optimization and developing a treatment decision matrix, including identifying the feasibility and consequences of each treatment. KCI's pavement asset management, engineering, and planning capabilities can be summarized as:

DATA COLLECTION SERVICES

- Automated pavement condition assessment
  - Surface distress, ride quality, and structural
- Asset inventory and assessment on a GIS platform
  - Sidewalks, signs, striping, traffic signals, curb & gutter, lighting, and other right-of-way assets
- 360 degree camera high-resolution video-logging of right-of-way
- LiDAR point cloud data acquisition and asset data extraction

CUSTOMIZED ASSET MANAGEMENT SOFTWARE

- Central management system implementation for all assets
  - PAVER™, Pavement Express®, Cityworks®, Maximo, Cartegraph OMS, and other CMMS
- Mobile applications for field support (asset inventory, condition surveys, and maintenance activities)
  - Sidewalks, signs, markings, light poles, traffic signals, etc.
- GIS integration, GIS/database management, web-portal and cloud data visualization tools
- Pavement and right-of-way asset image viewer dashboard

ENGINEERING AND PLANNING SERVICES

- Multi-year maintenance and capital improvement plan (CIP) development
- Maintenance quality assurance (MQA) review
- Governmental policy compliance (GASB 34, retroreflectivity)
- Non-Destructive Testing of Pavements
  - Ground Penetrating Radar (GPR)
  - Falling Weight Deflectometer (FWD)
- Pavement Design
  - AASHTOWare Pavement ME Design
  - Life-cycle-cost analysis (LCCA)

Teaming Partner

ESP Associates, Inc. is a multi-disciplinary firm serving various phases of project development and has been providing a complete range of surveying services for 35 years. This includes conventional and GPS surveys, mobile and terrestrial lidar scanning, aerial mapping, subsurface utility engineering (SUE), pavement condition assessments and asset inventory, and GIS services. ESP has the resources and talent to meet your project requirements.

ESP has provided automated pavement condition assessment for more than five years and mobile LiDAR mapping services on a full-time basis since 2010. Over the past 10 years, ESP has collected thousands of miles of city, state,

and privately-owned roadways in North Carolina with survey-grade mobile LiDAR for both design survey and asset inventory. ESP has collected over 5,600 miles of pavement data in the past year alone. ESP has seven offices across the Carolinas, with offices in Raleigh, Cornelius, and Fort Mill (HQ) available to serve this contract. Combined, these offices have more than 60 field and professional staff to provide quick response and timely completion of projects while eliminating the need for mobilization charges. KCI, supported by ESP, brings local understanding and project expertise to deliver automated data collection to the City.

REQUIRED FORMS

REQUIRED FORMS

Please refer to the following pages for required forms.

Acknowledgement is hereby made of the following Addendum(s) received since issuance of the Contract Documents (identified by number)

Addendum No.	Date	Addendum No.	Date	Addendum No.	Date
1	01/30/2023				

Company Name: KCI Technologies, Inc.

It shall be the responsibility of each Offerer to visit the City Purchasing Department's website to determine if addendum(s) were issued and, if so, to obtain such addendum(s). Failure to acknowledge an addendum above shall not relieve the Offerer from its obligation to comply with the provisions of the addendum(s) not acknowledged above.

Work is to be completed within 180 days of notice to proceed**.**

The City of Dunwoody requires pricing to remain firm for the duration of the initial term of the contract. Failure to hold firm pricing for the initial term of the contract will be sufficient cause for the City to declare bid non-responsive.

Termination for Cause: The City may terminate this agreement for cause upon ten days prior written notice to the Consultant of the Consultant's default in the performance of any term of this agreement. Such termination shall be without prejudice to any of the City's rights or remedies by law.

Termination for Convenience: The City may terminate this agreement for its convenience at any time upon 30 days written notice to the Consultant. In the event of the City's termination of this agreement for convenience, the Consultant will be paid for those services actually performed. Partially completed performance of the agreement will be compensated based upon a signed statement of completion to be submitted by the Consultant, which shall itemize each element of performance.

Termination for fund appropriation: The City may unilaterally terminate this Agreement due to a lack of funding at any time by written notice to the Consultant. In the event of the City's termination of this Agreement for fund appropriation, the Consultant will be paid for those services actually performed. Partially completed performance of the Agreement will be compensated based upon a signed statement of completion to be submitted by the Consultant which shall itemize each element of performance.

The contractor agrees to provide all work to complete the project described in this document for the amount listed below.

Legal Business Name KCI Technologies, Inc.

Federal Tax ID 52-1604386

Address 2160 Satellite Boulevard, Suite 130, Duluth, GA 30097

Does your company currently have a location within the City of Dunwoody? Yes____ No X

Representative Signature

Printed Name Erick Fry, PE

Telephone Number 678.990.6200

Fax Number N/A

Email Address erick.fry@kci.com

REQUIRED DOCUMENT

Contractor Affidavit under O.C.G.A. § 13-10-91(b)(1)

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of the City of Dunwoody has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91(b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

113742
Federal Work Authorization User Identification Number

April 4, 2008
Date of Authorization

KCI Technologies, Inc.
Name of Contractor

CITY OF DUNWOODY
Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on February 1, 2023 in Duluth (city), Georgia (state).

Signature of Authorized Officer or Agent

Erick Fry Vice President
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME
ON THIS THE 1st DAY OF February, 2023.
Christina Perez Young
NOTARY PUBLIC

My Commission Expires: May 20, 2025

CHRISTINA PEREZ YOUNG NOTARY PUBLIC GWINNETT COUNTY, GEORGIA MY COMMISSION EXPIRES MAY 20, 2025

REQUIRED DOCUMENT

O.C.G.A. § 50-36-1(e) (2) Affidavit Verifying Status for City Public Benefit

****This form is required for ALL LICENSES/PERMITS/CONTRACTS by State Law****

By executing this affidavit under oath, as an applicant for a(n) N/A - KCI Technologies, Inc. is a Corporation [type of public benefit(s)], as referenced in O.C.G.A. § 50-36-1, from the City of Dunwoody, Georgia, the undersigned applicant verifies one of the following with respect to my application for a public benefit:

1) _____ I am a United States citizen
(Must include copy of either current State Driver's License, Passport, or Military ID)

2) _____ I am a legal permanent resident of the United States**
(Must include a copy of your current State Driver's License and a copy of your Permanent Resident Card or Employment Authorization Card)

3) _____ I am a qualified alien or non-immigrant under the Federal Immigration
and Nationality Act with an alien number issued by the Department of Homeland Security or other federal immigration agency.**
(Must include a copy of your current State Driver's License and a copy of your Permanent Resident Card or Employment Authorization Card)

**My alien number issued by the Department of Homeland Security or other federal immigration agency is: _____.

The undersigned applicant also hereby verifies that he or she is 18 years of age or older and has provided at least one secure and verifiable document, as required by O.C.G.A. § 50-36-1(e)(1), with this affidavit.

The secure and verifiable document provided with this affidavit can best be classified as:

N/A - KCI Technologies, Inc. is a Corporation

In making the above representation under oath, I understand that any person who knowingly and willfully makes a false, fictitious, or fraudulent statement or representation in an affidavit shall be guilty of a violation of O.C.G.A. § 16-10-20, and face criminal penalties as allowed by such criminal statute.

Executed in Duluth (City), Georgia (State).

CHRISTINA PEREZ YOUNG NOTARY PUBLIC GWINNETT COUNTY, GEORGIA MY COMMISSION EXPIRES MAY 20, 2025

_____ 2/1/2023
Signature of Applicant Date

Erick Fry
Printed Name of Applicant

SUBSCRIBED AND SWORN BEFORE ME ON THIS THE 1st DAY OF February, 2023.

_____ My Commission Expires: May 20, 2025
NOTARY PUBLIC/SEAL


KCI