

Technical Evaluation Committee (TEC) Questionnaire

Instructions

- The Technical Evaluation Committee (TEC) Questionnaire shall be used for professional services related to architecture, engineering, or survey projects.
- **The TEC Questionnaire should be completely filled out. Complete and attach ALL sections. Insert “N/A” or “None” if a section does not apply or if there is no information to provide.**
- Questionnaire must be signed by an authorized representative of the Firm. Failure to sign the questionnaire shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- All subcontractors must be listed in the appropriate section of the Questionnaire. Each subcontractor must provide a complete copy of the TEC Questionnaire, applicable licenses, and any other information required by the advertisement. Failure to provide the subcontractors' complete questionnaire(s), applicable licenses, and any other information required by the advertisement shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- If additional pages are needed, attach them to the questionnaire and include all applicable information that is required by the questionnaire.

TEC Professional Services Questionnaire

A. Project Name and Advertisement Resolution Number:

SOQ 24-001 To Provide Pavement Testing and Pavement Management Services

B. Firm Name & Address:

Michael Baker International, Inc.
2600 CitiPlace Drive, Suite 450
Baton ROuge, LA 70808

C. Name, title and contact information of Principal, as defined in Section 2-926 of the Jefferson Parish Code of Ordinances, who is a registered, licensed architect, professional engineer, or surveyor in the State of Louisiana:

Daniel Thornhill, PE, Office Executive
Email: Daniel.Thornhill@mbakerintl.com
Phone: 225-218-2846 (Office) or 205-908-8026 (Cell)

D. Name and contact information of employee who is a registered and licensed architect, professional engineer, or surveyor in the State of Louisiana in the applicable discipline. A subcontractor may be substituted here only if the advertised Project requires more than one discipline.

Daniel Thornhill, PE, Office Executive
Email: Daniel.Thornhill@mbakerintl.com
Phone: 225-218-2846 (Office) or 205-908-8026 (Cell)

E. Please provide the number of employees whose primary function corresponds with each category:

<u>3</u> Administrative	<u> </u> Estimators	<u> </u> Specification Writers
<u> </u> Architects (Licensed)	<u> </u> Geologists	<u> </u> Structural Engineers
<u> </u> Chemical Engineers	<u> </u> Geotechnical Engineers	<u> </u> Graduate Engineers
<u>10</u> Civil Engineers	<u> </u> Interior Designers	<u>6</u> Project Managers
<u>5</u> Construction Inspectors	<u> </u> Landscape Architects	<u> </u> Clerical
<u> </u> Ecologists	<u> </u> Land Surveyor	<u> </u> Grant/Funding Specialist
<u> </u> Electrical Engineers	<u> </u> Mechanical Engineers	<u> </u> Sanitary Engineers
<u>6</u> Engineer Intern	<u> </u> Environmental Engineers	
<u> </u> Professional Land Surveyors		<u>30</u> TOTAL

F. Is this submittal by a JOINT-VENTURE? Please check: YES ☐ NO ☒

If marked "No" skip to Section I. If marked "yes" complete Sections G-H.

TEC Professional Services Questionnaire

G. If submittal is by JOINT-VENTURE, list the firms participating and outline specific areas of responsibility (including administrative, technical, and financial) for each firm. Please attach additional pages if necessary.

1. N/A

2.

H. Has this JOINT-VENTURE previously worked together? Please check:

YES ☐ NO ☐

I. List all subcontractors anticipated for this Project. Please note that all subcontractors must submit a fully completed copy of this questionnaire, applicable licenses, and any other information required by the advertisement. See Jefferson Parish Code of Ordinances, Sec. 2-928(a)(3). Please attach additional pages if necessary.

Name & Address:	Specialty:	Worked with Firm Before (Yes or No):
1. N/A		
2.		
3.		

J. Please specify the total number of support personnel that may assist in the completion of this Project:

30 _____

TEC Professional Services Questionnaire

K. List the professional in charge, key persons, specialists, and individual consultants anticipated for this Project and provide their relevant information below. If necessary, please attach additional documentation (i.e. resume) that demonstrates the employment history and experience of the Firm's key persons that may assist in the completion of this Project. Please attach additional pages if necessary.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Daniel Thornhill, PE, Office Executive

Project Assignment:

Principal & Professional in Charge

Name of Firm with which associated:

Michael Baker International, Inc.

Years' experience with this Firm:

4 Years (27 Years Total)

Education: Degree(s)/Year/Specialization:

BS / 1997 / Civil Engineering

Active registration: Year first registered/discipline:

2006 / Louisiana Professional Engineer / Civil Engineering / License# 32367
2002 / Alabama Professional Engineer / Civil Engineering / License# 25136

Other experience and qualifications relevant to the proposed Project:

Mr. Thornhill has over two decades of consulting experience in a variety of engineering projects including roadway design, corridor/traffic operation concept analysis, bridge design, hydraulics design, subsurface drainage design, and sidewalk beautification projects. Before joining Michael Baker International, Mr. Thornhill has served as Project Manager/Senior Engineer in the Baton Rouge area since 2006 being responsible for Roadway/Transportation Design and Corridor Studies for both EBR DOTD, LA DOTD, Lafayette Consolidated Government and St. Tammany Parish Department of Public Works. Since 2021, Mr. Thornhill has served as the office executive for the Michael Baker Baton Rouge office. *Resume Attached*

Daniel Thornhill, P.E.

Principal In Charge/Professional In Charge

General Qualifications

Mr. Thornhill has over two decades of consulting experience in a variety of engineering projects including roadway design, corridor/traffic operation concept analysis, bridge design, hydraulics design, subsurface drainage design, and sidewalk beautification projects. Before joining Michael Baker International, Mr. Thornhill has served as Project Manager/Senior Engineer in the Baton Rouge area since 2006 being responsible for Roadway/Transportation Design and Corridor Studies for both EBR DOTD, LA DOTD, Lafayette Consolidated Government and St. Tammany Parish Department of Public Works. Since 2021, Mr. Thornhill has served as the office executive for the Michael Baker Baton Rouge office.

Experience

New Orleans Rail Gateway Environmental Impact Statement, Jefferson and Orleans Parishes, Louisiana. *Louisiana Department of Transportation and Development (LADOTD).* **Senior Engineer.**

Providing QA/QC review of the alignments and corridor improvements that were being developed by Michael Baker staff in the Baton Rouge office. Project included corridor screening of several different alternatives to provide access over the railroad tracks vs. at-grade railroad crossings. Additional responsibilities included making sure the design team were meeting DOTD design guidelines while taking into account improvements the Parish would like incorporated into the corridor improvements. Michael Baker is providing environmental and engineering services to develop an environmental impact statement for the New Orleans Rail Gateway, the fourth-largest freight and passenger rail gateway in the United States. Michael Baker's services include project management, review of previous studies, environmental resources investigations, geographic information system development, mapping, rail and roadway travel demand modeling, alternatives analyses, rail and roadway conceptual design, cost estimates, document preparation, stakeholder and agency coordination, and extensive public outreach.

New Orleans Rail Gateway - Avondale PEL Study, Jefferson Parish, Louisiana. *Louisiana Department of Transportation and Development (LADOTD).* **Senior Engineer.** Providing QA/QC review of the alignments and corridor improvements that were being developed by Michael Baker staff in the Baton Rouge office. Project included corridor screening of several different alternatives to provide access over the railroad tracks vs. at-grade railroad crossings. Additional responsibilities included making sure the design team were meeting DOTD design guidelines while taking into account improvements the Parish would like incorporated into the corridor improvements. Michael Baker is providing operations, engineering, and environmental studies and preparing a planning and environmental linkages (PEL) study to evaluate the consolidation, road-over-rail grade separation, or closure of four at-grade highway-rail crossings (Live Oak Boulevard, Willswood Lane, George Street, and Avondale-Garden Road). For the project, Michael Baker is performing project management, solicitation of views, secondary-source environmental resources inventory, geographic information system (GIS) mapping, freight rail operations forecasting and crossing occupancy time analyses, roadway traffic and crash analyses, purpose and need, roadway/bridge conceptual design, cost estimates, alternatives analyses, stakeholder and agency coordination, and public outreach.

Years of Experience: 28

Degrees

B.S., 1997, Civil Engineering,
Louisiana State University
and A & M College

Licenses/Certifications

Professional Engineer,
Louisiana, 2006, 32367

Professional Engineer,
Alabama, 2002, 25136

Professional Engineer,
Georgia, 2019, 044793

Professional Engineer, North
Carolina, 2019, 048811

Professional Engineer,
Tennessee, 2018, 121363

Professional Engineer, Texas,
2018, 130259

Professional Engineer,
Arkansas, 2020, 19769

New Orleans Rail Gateway - Jefferson Highway Rail Crossing Relocation EA, Jefferson Parish, Louisiana. *Louisiana Department of Transportation and Development (LADOTD).* **Senior Engineer.** Provided QA/QC review of the new overpass alignments that were prepared by our sub-consultant who was responsible for developing the new corridor alignments and improvements. Michael Baker is providing operations, engineering and environmental studies and preparing an environmental assessment (EA) for improvements to two at-grade highway-rail crossings along Jefferson Highway (US 90) in Jefferson Parish, between the Ochsner Health Foundation Hospital and Monticello Avenue. For the project, Michael Baker is performing solicitation of views (SOV) including Native American government-to-government coordination through FRA, environmental resources investigations, geographic information system (GIS) mapping, freight rail operations forecasting and crossing occupancy time analyses, roadway traffic and crash analyses, rail and roadway/bridge conceptual design, cost estimates, alternatives analyses, stakeholder and agency coordination, and public outreach

Woodmere Boulevard Panel Replacement Project, Jefferson Parish, Louisiana. *Jefferson Parish.* As a subconsultant, Michael Baker provided Louisiana Department of Transportation and Development (DOTD)-certified inspection services and engineering support. Responsible for advising prime consultant on DOTD CE&I methods and managing certified inspection staff. The project included the removal of curbs and sidewalks, installation of Americans with Disabilities Act-compliant handicap ramps, cleaning and resealing existing longitudinal and transverse concrete joints, and full-depth jointed concrete pavement patching.

I-10 TX Line-E of Coone Gully, District 07, Louisiana. *Louisiana Department of Transportation and Development (LADOTD).* **Principal-In-Charge.** Served as the Office Manager Engineer. Worked with the Project Manager to assign resources and go over project budgets. Michael Baker provided staff augmentation services for District 07 inspection and administrative staff. The project involved widening 10.5 miles of I-10 to six lanes from the Texas state line to east of LA 108, replacing and widening 10 bridges, and replacing the eastbound weigh-in-motion system. Michael Baker provided construction inspection for structural work, PCC Paving, and drainage work.

Adaptive Traffic Signal Project, Lafayette, Louisiana. *Louisiana Department of Transportation and Development (LADOTD).* **Senior Engineer.** Responsible for serving as office manager to work with the project manager to determine resources and when they needed to be provided on the project or when resources needed to be adjusted and re-allocated. As the third task order under the IDIQ "CE&I with Majority of Work in District 07 Statewide," Michael Baker is providing construction management, inspection, and administrative services for an adaptive traffic signal design and implementation project. The project involves upgrading and installing controllers and GPS-based preemption and intersection devices at 190 intersections and installing a new server at Louisiana Consolidated Government (LCG).

LaDOTD 4400025026. *Louisiana Department of Transportation and Development (LADOTD).* **Principal-In-Charge.** Serves as Principal-In-Charge and responsible for coordination with Michael Baker and DOTD Project Managers in regard to the delivery of the Final Structures List to move from the Initial Services to Additional Services. Additional responsibilities include contract management with DOTD Contract Services Department.

LaDOTD Contract 4400017092 for LWI - Louisiana Watershed Initiative - LWI Region 4 - TO 1. *Louisiana Department of Transportation and Development (LADOTD).* **Senior Engineer.** Responsibilities for this task order was to attend progress meetings with the client to make sure Michael Baker staff was meeting client deadlines and submittals.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Vahid Ganji, PhD, PE, Department Manager (Pavement)
Project Assignment:
Project Manager
Name of Firm with which associated:
Michael Baker International, Inc.
Years' experience with this Firm:
17 Years (28 Years Total)
Education: Degree(s)/Year/Specialization:
PhD / 1996 / Pavement Engineering MS / 1996 / Pavement Engineering MS / 1993 / Hydraulics & Structures BS / 1990 / Civil Engineering
Active registration: Year first registered/discipline:
2014 / New York Professional Engineer / Civil Engineering / License# 094156
Other experience and qualifications relevant to the proposed Project:
Vahid has over 28 years of experience in pavement evaluation, rehabilitation, design, and pavement management systems such as PAVER and StreetSaver. He received both StreetSaver and NCAT certification. He also has extensive experience in nondestructive testing of pavements as well as bridge decks at project or network level, including automated Laser Crack Measurement System (LCMS), Falling Weight Deflectometer (FWD), Ground Penetrating Radar (GPR), High-Speed Profilers, and International Roughness Index (IRI) measurements. Vahid has successfully served as the Project Manager/ Technical Lead for Michael Baker on numerous large-scale pavement condition evaluation and pavement management system projects (PAVER and StreetSaver) including statewide pavement evaluations for the NJDOT (>6,000 miles) and West Virginia Division of Highways (WVDOT) (>25,000 miles). His recently completed projects related to pavement management include automated data collection and PMP update for Dallas-Fort Worth Airport (TX), City of Lincoln (NE), Napa County (CA), City of Treasure Island (FL), Camden County (NJ), City of Camden (NJ), City of Oakland (CA), City of Turlock (CA), City of Indio (CA), Pinellas County (FL), City of Vineland (NJ), City of Newark (NJ), Morris County (NJ), Mercer County (NJ), and among others. *Resume Attached*

Vahid Ganji, PhD, PE

Project Manager

General Qualifications

Vahid Ganji has over 28 years of experience in pavement evaluation, pavement design, and pavement management. He is both StreetSaver and NCAT certified. He also has extensive experience in nondestructive testing of pavements as well as bridge decks at project or network level, including automated Laser Crack Measurement System (LCMS), Falling Weight Deflectometer (FWD), Ground Penetrating Radar (GPR), High-Speed Profilers, and International Roughness Index (IRI) Measurements.

Vahid has successfully served as the Project Manager/ Technical Lead for Michael Baker on numerous large-scale pavement condition evaluation and pavement management system projects (PAVER and StreetSaver) including statewide pavement evaluations for the New Jersey Department of Transportation (NJDOT) (>6,000 miles) and West Virginia Division of Highways (WVDOT) (>25,000 miles). His recently completed projects related to pavement management consisting of automated data collection and PMS update include Dallas-Fort Worth Airport (TX), City of Lincoln (NE), Napa County (CA), City of Treasure Island (FL), Camden County (NJ), City of Camden (NJ), City of Oakland (CA), City of Turlock (CA), City of Indio (CA), Pinellas County (FL), City of Vineland (NJ), City of Newark (NJ), Morris County (NJ), Mercer County (NJ), and among others.

Experience

Pavement Condition Survey. *City of Los Angeles, CA.* **Senior Project Manager.** Responsibilities include overall project coordination, quality control, and developing an alley inspection and management process that the city will implement and adopt. Michael Baker supports the Bureau of Engineering Street Improvement Division and Bureau of Street Services in Los Angeles on a task order basis. Our local team supports the City's data collection activities so the city can make informed programming decisions and apply advanced pavement preservation techniques. Our support includes 5,000+ centerline miles of condition assessment data, conducting a pilot of the City's alley network, updating the City's Pavement Management System with the current version of PAVER, and educating City staff on how to perform similar updates in the future.

Pavement Management Plan Update, Napa County, CA. *Napa County.* **Technical Specialist.** Responsible for leading pavement management system using StreetSaver and developing a comprehensive 10-year work plan for 840 lane mile of county pavement network. Michael Baker provided engineering services for the collection of LCMS pavement condition data and the update of a pavement management plan (PMP) in StreetSaver. This data included international roughness index (IRI), pavement condition index (PCI), rutting, patching, cracking, potholes, raveling, faulting, drop-off, and macrotexture for 840 lane miles of roadway. The PCI values for 570 management sections were updated in StreetSaver. Michael Baker obtained roadway imagery using five high-definition cameras and collected distress data per ASTM D6433 and MTC StreetSaver standards. Michael Baker performed a budgetary needs analysis for five different scenarios and offered treatment recommendations.

Years of Experience: 28

Degrees

Ph.D., Geotechnical
/Pavement Engineering,
Rutgers University

M.S., Geotechnical
/Pavement Engineering,
Rutgers University

M.S., Hydraulics &
Structures, Sharif
University of Technology

B.S., Civil Engineering,
Ferdowsi University

Licenses/Certifications

Professional Engineer, New
York, 094156

Manual and Automated
Pavement Rater
Certification, StreetSaver,
2018

Pavement Condition Index
Assessment Certificate,
StreetSaver MTC 2018

NCAT Pavement Profiler
Certification, 2018

Pavement Management System, Treasure Island, FL. *City of Treasure Island.* **Project Manager.** Responsibilities included the oversight of auto/semi-auto pavement distress selections, pavement analysis, and development of non-destructive pavement prescriptions. Also, developed a PMS and a comprehensive 5-year work plan for the city pavement network. Pavement distress survey was performed by LCMS in accordance with ASTM D6433 standards. Developed a logical pavement management network definition in coordination with the City based on this historical information and Pinellas County GIS data. The pavement distresses were integrated into a newly implemented PAVER™ database, where initial models, including deterioration and M&R decision trees, were developed. Also provided onsite training at the city on the PAVER™ application.

Pavement Management System and ADA Asset Inventory, Indio, CA. *City of Indio.* **Technical Lead.** Responsible for oversight and review of pavement distress processing and PCI rating validations. Michael Baker provided Mobile LiDAR mapping and LCMS data collection surveys services in support of the City of Indio's refresh of the five-year pavement management plan successfully performed by Michael Baker in 2017. The project included collection and processing of mobile LiDAR data, LCMS pavement surface condition data, and 360-degree high-resolution spherical digital imagery on approximately 450 lane miles of City-owned streets.

Pavement Inventory and Management, Camden County, New Jersey. *Camden County, NJ.* **Pavement Condition Assessment Task Lead.** Vahid worked closely with Camden County to develop a detailed 5-year PAVER pavement management plan, which included provisions for current pavement conditions (PCI), different budget scenarios and pavement treatment options. He also oversaw automated PCI survey, skid testing, GPR testing, and a coring program. Michael Baker developed and implemented a pavement management system for Camden County, New Jersey. Tasks included a roadway inventory, pavement surface and asset data collection, pavement data processing, report preparation, and implementing and deploying the PAVER pavement management system. Other tasks included a delivery of roadway video log, asset data collection, and PAVER training for the county staff.

Pavement Management System, City of Camden, New Jersey. *City of Camden, NJ.* **Project Manager.** Vahid led the efforts to develop the first PMS for the City of Camden under a contract with the Delaware Regional Valley Planning Commission (DVRPC). He oversaw automated pavement condition data collection on 180 miles of streets using LCMS. MBI used this data to implement a new PMS (PAVER). Additionally, MBI performed skid testing, GPR testing, and a limited coring program to include skid data as well as pavement thickness and composition data into PAVER software. The project also included procuring and deploying PAVER software and training the City staff. MBI also collected and extracted over 30,000 inlet and drainage asset data.

West Virginia Statewide Pavement Data Collection. *WVDOH.* **Subject Matter Expert.** Responsible for providing oversight, quality assurance, and guidance related to statewide LCMS pavement data collection for more than 25,000 miles of WVDOH roads and preparing pavement condition reports in accordance with HPMS.

Pavement Condition Inventory. *Pennsylvania Turnpike Commission.* **Subject Matter Expert.** Responsible for providing oversight, quality assurance, and guidance related to pavement distress data collected including concrete ASR using LCMS, high-speed profiler, and video imaging as well as skid resistance testing. Support data modeling and analysis to assist in the translation of raw data into a Pavement Condition Rating (PCR).

Pavement Engineering Services. *NJ Statewide.* **Project Manager.** As part of an 18-year (six terms) agreement performed hundreds of task orders for detailed project level pavement evaluation and design for more than 6,000 lane miles of roads. The pavement evaluation included FWD, GPR, DCP, LCMS, IRI, skid testing, coring, pavement condition survey, and roadway geometry constraints such as curb reveal and bridge under clearances. Due to considerable length of projects, pavement sectionalizing was performed based on structural and functional condition of the pavement, traffic data, and geometric constraints to obtain the most cost effective rehabilitation alternative for each section. Developed innovative application to obtain remaining service life based on AASHTO 1993 and mechanistic-empirical methodology for numerous pavement sections (more than 30,000 pavement design and service life analysis).

CERTIFICATE OF ACHIEVEMENT

This is to certify that

Vahid Ganji

has successfully completed the course

MTC StreetSaver Distress ID Online Tutorial

November 1, 2023



Sui Tan, StreetSaver Program Manager
Metropolitan Transportation Commission



TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Nathan Kebede, PE, National Pavement Services Program Lead
Project Assignment:
Quality Manager
Name of Firm with which associated:
Michael Baker International, Inc.
Years' experience with this Firm:
1 Year (13 Years Total)
Education: Degree(s)/Year/Specialization:
Certificate / 2019 / Business MS / 2012 / Civil Engineering BS / 2010 / Civil Engineering
Active registration: Year first registered/discipline:
2015 / Illinois Professional Engineer / Civil Engineering / 062.067463 2017 / Colorado Professional Engineer / Civil Engineering / 0053045 2021 / Texas Professional Engineer / Civil Engineering / 140340
Other experience and qualifications relevant to the proposed Project:
Nathan leads the National Pavement Services Program at Michael Baker. He is an experienced pavement management engineer and project manager, having worked on numerous pavement condition inspection and pavement management projects for clients that include municipalities, state highway agencies, state aviation agencies, federal agencies, and the Department of Defense. Nathan's technical efforts have focused on delivering pavement evaluation services to clients in a clear and understandable format to promote informed maintenance and funding decision making. He has provided pavement evaluation and management services for tens of thousands of miles of roadway pavement and more than 100 airport pavement facilities in the U.S. and abroad. He delivers findings of projects to decision makers and supports their efforts in identifying equitable and effective pavement maintenance and rehabilitation solutions. Nathan is an active member of the pavement management community and participates in numerous organizations. *Resume Attached*

Nathan Kebede, PE

Quality Manager

General Qualifications

Nathan leads the National Pavement Services Program at Michael Baker International, Inc. He is an experienced pavement management engineer and project manager, having worked on numerous pavement condition inspection and pavement management projects for clients that include municipalities, state highway agencies, state aviation agencies, federal agencies, and the Department of Defense. Nathan's technical efforts have focused on delivering pavement evaluation services to clients in a clear and understandable format to promote informed maintenance and funding decision making. He has provided pavement evaluation and management services for tens of thousands of miles of roadway pavement facilities in the U.S. and abroad, including managing and delivering the 2017 Colorado Springs Pavement Data Collection and Asset Inventory project.

Prior to joining Michael Baker, Nathan served as the Chief Operating Officer of an international transportation infrastructure monitoring technology firm where he played a leading role in developing and introducing advanced pavement evaluation technologies to State Departments of Transportation and Toll Road Authorities across the nation. Nathan also served as Data Services Manager and Pavement Engineer at Cartegraph where he was instrumental in efforts to further develop and upgrade the Cartegraph OMS software for pavement management applications. Nathan is an active member of the pavement management community and participates in numerous organizations; he is a member of the Highway Pavements Committee and the Infrastructure Systems Committee of the ASCE Transportation & Development Institute. Nathan also serves on committees and panels at the Federal Highways Administration (FHWA) National Cooperative Highway Research Program (NCHRP) and the National Academies of Science, Engineering, and Medicine – Transportation Research Board (TRB) where he is an active contributor to the development of guides and standards that shape the pavement evaluation and pavement management industry.

Experience

Pavement Condition Survey. *City of Los Angeles, CA.* **Project Manager.** Responsible as Michael Baker's Project Manager and oversees all tasks related to providing data collection and engineering services to conduct pavement condition surveys for 5,000 miles of city-maintained streets for the Los Angeles Bureau of Street Services (StreetsLA). Nathan's responsibilities include oversight of all field data collection and data processing tasks as well as communication and coordination of project activities between the City and Michael Baker's project team which includes four subconsultants. Collected and delivered pavement condition data includes cracking, rutting, faulting, and IRI, along with roadway characteristics inventories.

Mississippi Pavement Condition Survey & HPMS Data Collection. *MDOT.* **Technical Lead.** Nathan serves as Michael Baker's technical lead and oversees tasks to provide surveying and engineering services to conduct pavement condition surveys, roadway inventory, and highway performance monitoring system data collection for state-maintained highways for the Mississippi Department of Transportation. Michael Baker is performing

Years of Experience: 13

Degrees

Certificate, Business,
University of Pennsylvania,
2019

M.S., Civil Engineering,
University of Illinois at
Urbana- Champaign, 2012

B.S., Civil Engineering,
Jackson State University,
2010

Licenses/Certifications

Professional Engineer - Civil,
Illinois, 2015, 062.067463

Professional Engineer - Civil,
Colorado, 2017, PE.0053045

Professional Engineer - Civil,
Texas, 2021, PE 140340

data collection on 35,000 miles of roadway over the course of four years. The collected and delivered data includes rutting, faulting, cracking, friction, and IRI, along with roadway characteristics inventories.

Pavement Data Collection and Pavement Management update. *Butte County, CA.* **Project Manager.** Responsible as the Project Manager for Butte County's Pavement Distress Data Collection project. Nathan's responsibilities included oversight of roadway network GIS map reviews, data collection route planning, field technicians, data collection vehicles, QA/QC, data transfer, and data processing. Pavement Distress Data collected was loaded into the County's StreetSaver pavement management system and was used to perform various budget scenarios to develop a paving plan.

Pavement Data Collection. *City of Raleigh, NC.* **Project Principal.** Nathan also served as the Project Manager for the City of Raleigh's Pavement Distress Data Collection project for the 2019 and 2021 project cycles. Nathan's responsibilities included oversight of roadway network GIS map reviews, data collection route planning, field technicians, data collection vehicles, QA/QC, data transfer, and data processing. Pavement Distress Data collected helped the City better prioritize roadway maintenance and reduce cost while increasing overall pavement condition.

Annual Pavement Distress Data Collection. *Washington D.C. DOT.* **Project Manager.** Responsible as the Project Manager for Washington D.C. DOT's Annual Pavement Distress Data Collection project. Nathan's responsibilities included roadway network GIS map reviews, data collection route planning, oversight of field technicians, data collection vehicles, QA/QC, data transfer, and data processing. Pavement Distress Data collected helped the DOT meet Federal HPMS reporting requirements and update the DOT's PMS.

Pavement Data Collection and Pavement Management Update, Keene, NH. *City of Keene, NH.* **Project Manager.** Nathan served as the Project Manager for the City of Keene's Pavement Distress Data Collection project for the 2020 project cycle. Nathan's responsibilities included oversight of roadway network GIS map reviews, data collection route planning, field technicians, data collection vehicles, QA/QC, data transfer, and data processing. The data collection also included a pavement marking inventory performed using imagery that was collected during the pavement survey. Pavement Distress Data collected was loaded into the City's Cartegraph pavement management system and was used to perform various budget scenarios.

Pavement Data Collection, Charleston County, SC. *Charleston County, SC.* **Project Manager.** Nathan served as the Project Manager for the Charleston County Pavement Condition Survey project for the 2020 project cycle. Nathan oversaw roadway network GIS map reviews, data collection route planning, field technicians, data collection vehicles, QA/QC, data transfer, and data processing. Distress Data collected was loaded into the County's Agile Assets pavement management system and was used to perform various budget scenarios.

Pavement Data Collection for Weld County, CO. *Weld County, CO.* **Project Manager.** Nathan served as the Project Manager for the Weld County Pavement Condition Survey project for the 2020 project cycle. Nathan's responsibilities included oversight of roadway network GIS map reviews, data collection route planning, field technicians, data collection vehicles, QA/QC, data transfer, and data processing. Pavement Distress Data collected was loaded into the County's Cartegraph pavement management system and was used to perform various budget scenarios to develop a paving plan.

Pavement Data Collection and Asset Inventory for City of Colorado Springs, CO. *Colorado Springs.* **Project Manager.** Nathan served as the Project Manager for Colorado Springs Pavement Condition Survey and Asset Inventory project during the 2017- 2018 cycle. Nathan's responsibilities included oversight of roadway network GIS map reviews, pavement data collection, right-of-way imagery and LiDAR data collection, QA/QC, data transfer, and data processing. The asset inventory included sidewalks, medians, and curb ramps. Pavement Distress Data and asset inventory data collected was loaded into the City's Cartegraph pavement management system and was used to perform various budget scenarios to develop a paving plan as well as an ADA compliance plan.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Jibreel Rana, Senior Pavement Engineer
Project Assignment:
Pavement Distress Rating Task Lead
Name of Firm with which associated:
Michael Baker International, Inc.
Years' experience with this Firm:
6 Years (13 Years Total)
Education: Degree(s)/Year/Specialization:
MS / Anticipated 2025 / Data Science & Analytics MS / 2016 / Pavement Engineering BS / 2011 / Civil Engineering
Active registration: Year first registered/discipline:
N/A
Other experience and qualifications relevant to the proposed Project:
<p>Jibreel has over 12 years of specialized pavement evaluation and pavement management experience having worked on numerous pavement evaluation and pavement management projects for clients nationwide. Jibreel has served in a leading role on various roadway and airport projects that completed pavement testing (GPR, FWD, DCP, IRI, Skid) and analysis, pavement design, pavement condition surveys, PCI calculations, and pavement management system (PMS) implementations (PAVER and StreetSaver).</p> <p>Since joining Michael Baker, Jibreel has been instrumental in QA/QC of LCMS (automated) imagery pavement distress rating (ASTM D6433) and providing automated and manual distress survey training to the project staff on large-scale projects. In 2020 alone, he oversaw the rating of over 2.7 million images on the West Virginia Department of Highways Statewide Data Collection project. Jibreel is an MTC-certified StreetSaver (Modified ASTM D6433) Rater. Jibreel has been directly involved in several PMS update projects, in which his tasks included establishing/updating inventories, performing PCI calculations, establishing decision trees, M&R planning, and performing multi-year budget scenarios. *Resume Attached*</p>

Jibreel Rana

Pavement Distress Rating Task Lead

General Qualifications

Jibreel has over 12 years of specialized pavement evaluation and pavement management experience having worked on numerous pavement evaluation and pavement management projects for clients nationwide. Jibreel has served in a leading role on various roadway and airport projects that completed pavement testing (GPR, FWD, DCP, IRI, Skid) and analysis, pavement design, pavement condition surveys, PCI calculations, and pavement management system (PMS) implementations (PAVER and StreetSaver).

Since joining Michael Baker, Jibreel has been instrumental in QA/QC of LCMS (automated) imagery pavement distress rating (ASTM D6433) and providing automated and manual distress survey training to the project staff on large-scale projects. In 2020 alone, he oversaw the rating of over 2.7 million images on the West Virginia Department of Highways Statewide Data Collection project. Jibreel is an MTC-certified StreetSaver (Modified ASTM D6433) Rater. Jibreel has been directly involved in several PMS update projects, in which his tasks included establishing/updating inventories, performing PCI calculations, establishing decision trees, M&R planning, and performing multi-year budget scenarios.

Experience

Pavement Condition Survey. *City of Los Angeles, CA.* **Project Engineer.**

Responsible for distress rating to calculate PCI. Michael Baker supports the Bureau of Engineering Street Improvement Division and Bureau of Street Services in Los Angeles on a task order basis. Our local team supports the City's data collection activities so the City can make informed programming decisions and apply advanced pavement preservation techniques. Our support includes 5,000+ centerline miles of condition assessment data, conducting a pilot of the City's alley network, updating the City's Pavement Management System with the current version of PAVER, and educating City staff on how to perform similar updates in the future.

West Virginia Statewide Pavement Data Collection. *WVDOH.* **Project Engineer.** Responsible for providing quality assurance and guidance related to statewide LCMS imagery pavement distress rating for more than 25,000 miles of WVDOH roads. Provided training, handled staff logistics and aided the QA/QC process.

Pavement Inventory and Management, Camden County, New Jersey. *Camden County, NJ.* **Project Engineer.**

Responsibilities included providing quality assurance and guidance related to pavement distress rating, extracting inlets and manholes on LCMS collected raw imagery, GPR and Skid data analysis, and coring analysis. Jibreel also oversaw the task of establishing the pavement inventory, performing PCI calculations, and preparing a 5-year pavement treatment program based on various budget-scenarios. Michael Baker developed and implemented a pavement management system for Camden County, New Jersey. Tasks included a roadway inventory, pavement surface and asset data collection, pavement data processing, report preparation, and implementing and deploying the PAVER pavement management system. Other tasks included a delivery of roadway video log, asset data collection, and PAVER training for the county staff.

Years of Experience: 12

Degrees

M.S., Pavement Engineering, University of Illinois Urbana Champaign

B.S., Civil Engineering, University of Engineering & Tech. Lahore

Licenses/Certifications

MTC StreetSaver (Modified ASTM D6433) Rater Certification (SN 1154)

MTC Pavement Condition Assessment – PAVER

IDOT - HMA Level I

IDOT - HMA Level II

IDOT - PCC Level I

ACI – Concrete Field Technician Grade I

Pavement Management System, City of Camden, New Jersey. *City of Camden, NJ. Pavement Evaluation and Rating Lead.* Responsibilities included identification of distresses on LCMS collected raw imagery using an in-house distress selector, ground penetrating radar (GPR) testing and analysis, coring plans, and preparing GIS based network inventory for uploading in PAVER management system. Additionally, he worked closely with the team to automate inlet and manhole extractions from the collected high-resolution imagery. Michael Baker developed and implemented a pavement management system for Camden County, New Jersey for their street network of 180 miles. Tasks included automated pavement condition data collection, establishing roadway inventory, skid testing, GPR, coring, and PAVER implementation and training.

Pavement Management Plan Update, Napa County, CA. *Napa County. Project Engineer.* Responsible for performing distress surveys using the Michael Baker developed Distress Selector and training staff on identifying and rating distresses as per the MTC StreetSaver standard. Also, assisted the PMS technical lead in updating roadway network inventory in StreetSaver and performing multi-year budget scenarios and developing M&R plans. Michael Baker provided engineering services for the collection of LCMS pavement condition data and the update of a pavement management plan (PMP) in StreetSaver for 840 lane mile of county pavement network. This data included international roughness index (IRI), pavement condition index (PCI), rutting, patching, cracking, potholes, raveling, faulting, drop-off, and macrotexture for 840 lane miles of roadway. The PCI values for 570 management sections were updated in StreetSaver. Michael Baker collected distress data per ASTM D6433 and MTC StreetSaver standards. Michael Baker performed a budgetary needs analysis for five different scenarios and offered treatment recommendations.

Pavement Evaluation and Management System Implementation for Selected Arterial Streets. *City of Des Moines, Iowa. Lead Project Engineer.* Responsible as the lead project engineer for the Pavement Evaluation and Management System project for the selected Arterial Streets for the City of Des Moines, IA. The objective of the project was to evaluate and develop a management system for 11 selected arterial roadways (140 lane miles). The tasks included project development, records review, FWD testing, GPR testing, coring, automated PCI survey, roughness measurements, Rutting measurements, and final reporting.

Pavement Management System. *City of Chattanooga, Tennessee. Project Engineer.* The objective of the project was to deliver a Pavement Management System to the City of Chattanooga for their roadway network of approx. 2,600 lane miles. Jibreel managed a 6-person tech team in conducting PCI surveys from image data collected over the entire network. Additionally, assisted the project team in the analysis of GPR data and FWD data. Also, coordinated background data collection, records review, network identifications, GIS implementation of the inventory established, and PAVER implementation.

Pavement Management System. *City of Owosso, Michigan. Project Engineer.* The project required implementation of a Pavement Management System for the City of Owosso, MI for their approximately 150 lane-miles roadway network. Jibreel managed the pavement evaluation tasks and made frequent trips to the City for the collection of pavement network condition and structural data including PCI, IRI, Rutting, GPR, and Cores. Responsible for QC/QA for a group of 5 technicians to conduct PCI survey from images using state of the art rating software. Assisted project manager in the preparation of uniform sections and pavement inventory for input into PAVER. Finally, played a key role in the preparation of the final reporting for the management system including the inventory, condition data, structural data, and M&R plans.

Development of Pavement Design Manual for NJDOT. *NJDOT. Project Engineer.* Responsible for literature review, incorporating current NJDOT standards and guidelines, and developing guidelines for pavement testing (FWD, GPR, coring, DCP, and pavement distress survey). Michael Baker is developing a "Pavement Design Manual" for NJDOT as a guideline for pavement testing, evaluation, design, preservation, maintenance & rehabilitation (M&R), and other related pavement engineering tasks; and to standardize the processes for developing cost-effective M&R strategies and activities amongst NJDOT personnel, paving contractors, material producers, and consultants. The pavement manual includes elaborate descriptions and guidelines on pavement testing (FWD, GPR, and Coring) and design (AASHTO93 and ME).

CERTIFICATE OF ACHIEVEMENT

This is to certify that

Jibreel Rana

has completed the requirements of the

MTC StreetSaver Rater Certification Program

with the skills and knowledge on pavement condition
assessment based on the MTC's modified ASTM D6433

Certificate valid until Dec 18 2025

Serial no: 1154



Sui Tan, StreetSaver Program Manager
Metropolitan Transportation Commission



TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Kenneth Contrisciane, Project Manager (GIT)
Project Assignment:
Data Processing & GIS Task Lead
Name of Firm with which associated:
Michael Baker International, Inc.
Years' experience with this Firm:
22 Years (23 Years Total)
Education: Degree(s)/Year/Specialization:
BA / 2001 / Geographic Information Systems (GIS)
Active registration: Year first registered/discipline:
N/A
Other experience and qualifications relevant to the proposed Project:
Kenny offers more than 20 years of experience in the fields of GIS technology, asset inventory, and pavement data collection. He has served as the technical lead of Michael Baker's pavement data collection business line since its inception and has overseen the evolution and growth of the related services and technology that focus on the 3D pavement data collection systems. Kenny has experience with GPS data collection and processing, GIS database development and design, and programming. Kenny has served as the post processing task manager on several projects, including the Mississippi Statewide Roadway Inventory, Mississippi Statewide Pavement Data Collection, New Jersey HPMS Pavement Data Collection, and West Virginia Statewide pavement data collection project. Kenny developed and maintains the core data processing framework that translates raw data from the 3D LCMS pavement data collection system into various formats, including HPM and Agile Assets. Kenny is NCAT Pavement Profiler Certified (2018 & 2021) *Resume Attached*

Kenneth Contrisciane

Data Processing & GIS Task Lead

General Qualifications

Kenny offers more than 20 years of experience in the fields of GIS technology, asset inventory, and pavement data collection. He has served as the technical lead of Michael Baker's pavement data collection business line since its inception and has overseen the evolution and growth of the related services and technology that focus on the 3D pavement data collection systems. Kenny has experience with GPS data collection and processing, GIS database development and design, and programming.

Kenny has served as the post processing task manager on several projects, including the Mississippi Statewide Roadway Inventory, Mississippi Statewide Pavement Data Collection, New Jersey HPMS Pavement Data Collection, and West Virginia Statewide pavement data collection project. Kenny developed and maintains the core data processing framework that translates raw data from the 3D LCMS pavement data collection system into various formats, including HPMA and Agile Assets.

Years of Experience: 23

Degrees

B.A. Applied Geography,
Millersville University

Licenses/Certifications

NCAT Pavement Profiler
Certification, 2018 & 2021

Experience

Pavement Condition Survey. *City of Los Angeles, CA.* **Data Processing & GIS Lead.** Kenny was responsible for the management, organization, processing, and storage of all pavement and imagery data collected as part of this project. Michael Baker supports the Bureau of Engineering Street Improvement Division and Bureau of Street Services in Los Angeles on a task order basis. Our local team supports the City's data collection activities so the City can make informed programming decisions and apply advanced pavement preservation techniques. Our support includes 5,000+ centerline miles of condition assessment data, conducting a pilot of the City's alley network, updating the City's Pavement Management System with the current version of PAVER, and educating City staff on how to perform similar updates in the future.

West Virginia Statewide Pavement Data Collection. *WVDOH.* **Data Processing & GIS Lead.** Kenny was responsible for the management, organization, processing, and storage of all pavement and imagery data collected as part of this project. Michael Baker is performing statewide pavement data collection, including LCMS inventory and panoramic image collection on 28,000 miles of state roadway, extending across 10 districts and 55 counties in West Virginia. The inventory is being performed using Michael Baker's mobile data collection vehicle, which is equipped with a sensor-based LCMS. All pavement data collected is being spatially referenced and aligned with the 360-degree spherical imagery and downward facing pavement imagery from the LCMS and provided to the client via a web-based pavement data viewer application.

Mississippi Pavement Condition Survey & HPMS Data Collection. *MDOT.* **Project Manager.** Kenny is currently serving as the Project Manager for the four-year statewide pavement data collection project in which over 63,000 miles of state routes will be inventoried (inclusive of over 28,000 miles of skid data). In the initial 2 (of 4) years of the contract, Michael Baker has provided LCMS, inertial profiler, friction testing, and panoramic image collection on 35,000 miles of state roadway, extending across seven districts and 82 counties. An additional ~40,000 miles of collections will be performed during years 3 and 4. The inventory uses Michael Baker's innovative Network Survey Vehicles (NSV), which are equipped with an LCMS, Mosaic 51 spherical camera, inertial profiler for International Roughness Index (IRI), and four high resolution ROW cameras.

Pavement Management System and ADA Asset Inventory, Indio, CA. *City of Indio.* [Data Processing Manager.](#)

Kenny was responsible for the processing and delivery of data collected with Michael Baker's LCMS system. Work on this project involved pavement distress information captured using an LCMS system on over 400 centerline miles of city maintained roads in Indio, CA. Designed and developed Extract, Transform and Load (ETL) process, which translated raw LCMS data into the PAVER™ pavement management system and developed a framework and process that was used to extract and translate ancillary pavement distress information which were not captured by the LCMS. Michael Baker provided Mobile LiDAR mapping and LCMS data collection surveys services in support of the City of Indio's refresh of the five-year pavement management plan successfully performed by Michael Baker in 2017. The plan augments their ongoing public works ADA asset management program activities. The project included collection and processing of mobile LiDAR data, LCMS pavement surface condition data, and 360-degree high-resolution spherical digital imagery of City-owned streets.

Pavement Inventory and Management, Camden County, New Jersey. *Camden County, NJ.* [Project Manager.](#)

As the project manager, Kenny provided management and oversight of scope, schedule and budget for the roadway inventory of pavement condition, and ancillary asset data across 1,200 lane miles of county-owned roads. Michael Baker developed and implemented a pavement management system for Camden County, New Jersey. Tasks included a roadway inventory, pavement surface and asset data collection, pavement data processing, report preparation, and implementation and deployment of the PAVER pavement management system.

Pennsylvania Turnpike Pavement Condition Inventory. *Pennsylvania Turnpike Commission.* [Data Processing Manager.](#)

Kenny's responsibilities included data management, processing, and delivery of all pavement and imagery data collected as part of this project. Michael Baker performed a comprehensive pavement and roadway imagery inventory of 1,066 lane miles of mainline and extensions and 440 interchange ramps comprising approximately 258 lane miles along the Pennsylvania Turnpike. Michael Baker provided mobile LiDAR data collection, geographic information system (GIS) layer development, GIS application development, and pavement condition analysis.

Pavement Data Collection & Analysis. *Morris County.* [LCMS Technical Lead.](#) Responsible for the processing and delivery of data collected with Michael Baker's LCMS system. Pavement distress information was captured using an LCMS system on over 300 centerline miles of county-maintained roads in Morris County. Justin helped design the Extract, Transform and Load (ETL) process, which translated raw LCMS data into the PAVER pavement management system. He also helped develop a framework and process that was used to extract and translate ancillary pavement distress information which were not captured by the LCMS.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Aaron Morris, GISP
Project Assignment:
Data Collection Manager
Name of Firm with which associated:
Michael Baker International, Inc.
Years' experience with this Firm:
26 Years (26 Years Total)
Education: Degree(s)/Year/Specialization:
MS Certificate / 2008 / Project Management BS / 1995 / Geography and Urban Planning
Active registration: Year first registered/discipline:
N/A
Other experience and qualifications relevant to the proposed Project:
Aaron is a Vice President and National Geospatial Director for Michael Baker International. Within Michael Baker's operations-centric strategic organizational structure, he plays a significant role in fostering geospatial capabilities with local leadership to provide clients a broader portfolio of Michael Baker's services. As the Director of Roadway Inventory and Mobile LiDAR operations during the programs' initial four years, Aaron incubated Michael Baker's roadway data collection division from inception to the nation's leading service provider. In addition to managing project logistics nationwide, he also provides national leadership for Michael Baker's GeoLink GPS Software Engineering Departments serves on the national Board of Directors for MAPPS and provides primary technical consulting expertise on various Geospatial and LiDAR projects for local, state, and federal governments. *Resume Attached*

Aaron Morris, GISP

Data Collection Manager

General Qualifications

Aaron is a Vice President and National Geospatial Director for Michael Baker International. Within Michael Baker's operations-centric strategic organizational structure, he plays a significant role in fostering geospatial capabilities with local leadership to provide clients a broader portfolio of Michael Baker's services. As the Director of Roadway Inventory and Mobile LiDAR Operations during the programs' initial four years, Aaron incubated Michael Baker's roadway data collection division from inception to the nation's leading service provider. In addition to managing project logistics nationwide, he also provides national leadership for Michael Baker's GeoLink® GPS Software Engineering Departments; serves on the national Board of Directors for MAPPS; and provides primary technical consulting expertise on various Geospatial and LiDAR projects for local, state, and federal governments.

Experience

Pavement Condition Survey. *City of Los Angeles, CA.* **Data Collection Manager.** Responsible for management, supervision, and quality assurance of all data collection activities for the capture of Pavement LCMS, IRI, Friction and imagery data encompassing the entire state. In the initial two (of five) years of the contract, Michael Baker has provided LCMS, inertial profiler, friction testing, and panoramic image collection on 35,000 miles of state roadway, extending across seven districts and 82 counties. An additional ~40,000 miles of collections will be performed during years three to five. The inventory uses Michael Baker's innovative Network Survey Vehicles (NSV), which are equipped with an LCMS, Mosaic 51 spherical camera, inertial profiler for International Roughness Index (IRI), and four high-resolution ROW cameras.

Mississippi Pavement Condition Survey & HPMS Data Collection. *MDOT.* **National Data Collection Manager.** Responsible for management, supervision, and quality assurance of all data collection activities for the capture of Pavement LCMS, IRI, Friction and imagery data encompassing the entire state. In the initial 2 (of 4) years of the contract, Michael Baker has provided LCMS, inertial profiler, friction testing, and panoramic image collection on 35,000 miles of state roadway, extending across seven districts and 82 counties. An additional ~40,000 miles of collections will be performed during years 3 and 4. The inventory uses Michael Baker's innovative Network Survey Vehicles (NSV), which are equipped with an LCMS, Mosaic 51 spherical camera, inertial profiler for International Roughness Index (IRI), and four high resolution ROW cameras.

West Virginia Statewide Pavement Data Collection. *WVDOH.* **Data Collection Manager.** Aaron managed collection teams in the timely capture of approximately 8,000 miles of roadways across the state. Also responsible for program management and oversight of all mobile LiDAR activities (collection, processing, quality assurance, and product delivery. Michael Baker is performing statewide pavement data collection, including LCMS inventory and panoramic image collection on 28,000 miles of state roadway, extending across 10 districts and 55 counties in West Virginia. The inventory is being performed using Michael Baker's mobile data collection vehicle, which is equipped with a sensor-based LCMS. All pavement data collected is being spatially referenced and aligned with the 360-degree spherical imagery and downward facing pavement imagery from the LCMS and provided to the client via a web-based pavement data viewer application.

Years of Experience: 26

Degrees

MS Certificate, Project Management, University of Pittsburgh, 2008

B.S., Geography and Urban Planning, Frostburg State University, 1995

Licenses/Certifications

Certified GIS Professional, 59772, 2008

Pavement Condition Inventory. *Pennsylvania Turnpike Commission. Program Manager.* Aaron's role included management and supervision of all data collection activities and the collection team for the capture and analysis of data. Michael Baker performed curb ramp ADA (The Americans with Disabilities Act) collections and evaluations, sidewalk ADA and condition evaluations, and curb condition evaluations to support the City's plan to create long-term, transformative investments for Dayton's future. The project is focused on 42 neighborhoods consisting of approximately 556 miles of sidewalk, 677 miles of curb and 7,300 curb ramp systems.

Pavement Management System and ADA Asset Inventory, Indio, CA. *City of Indio. Program Manager.* Responsible for management, supervision, and quality assurance of all data collection activities for the capture of Mobile LiDAR and Pavement data encompassing the entire City of Indio. Michael Baker provided Mobile LiDAR mapping and LCMS data collection surveys services in support of the City of Indio's refresh of the five-year pavement management plan, successfully performed by Michael Baker in 2017. The plan augments their ongoing public works ADA asset management program activities. The project included collection and processing of mobile LiDAR data, LCMS pavement surface condition data, and 360-degree high-resolution spherical digital imagery on approximately 450 lane miles (222 centerline miles) of City-owned streets.

DFW Asset Management Program. *Dallas/Fort Worth International Airport. Data Collection Manager.* Aaron provided management, supervision, and quality assurance of all data collection activities for the capture of Mobile LiDAR and LCMS data on the airside and landside areas at DFWIA. Coordinated LiDAR processing activities and provided guidance on deliverables. Prepared presentations to demonstrate the data captured and its use for management. Michael Baker provided asset management and engineering services for the DFW infrastructure, including airside and landside pavement management and landside bridge inspections. Pavement management included data collection, software implementation, database customization, data analyses and reporting, and client staff training. Bridge inspections were categorized by the urgency and impact of deficiencies, and the uniformity of the work, which reduced costs.

MDOT Statewide Asset Inventory. *MDOT. Program Manager.* Aaron was responsible for management, supervision, and quality assurance of all data collection activities for the capture of Mobile LiDAR data encompassing nearly 3,000 miles of roadway in Rankin and Scott Counties (central MS). The data collection included every public right of way in the two counties and provided a cross-section of roadways that would be encountered Statewide.

Kentucky ADA Implementation Plan, Statewide, Kentucky. *KYTC. KYTC. Program Manager.* Aaron oversaw and managed all data collection, quality control, and deliverables. This included development of a quality control processes and data queries used by the sub-contractor and Michael Baker staff to review data prior to delivery. Michael Baker performed a statewide inventory of pedestrian facilities to support transition planning for compliance with the ADA. State-owned and maintained rights of way were captured using Mobile LiDAR and terrestrial spherical imagery where pedestrian facilities were believed to be located. Mobile LiDAR collections were performed along more than 4,000 miles of roadway, which included dense urban corridors to rural, outlying areas. Real-time vehicle tracking and an ArcGIS dashboard were used to track and report progress. With more than 13,000 intersections comprising over 34,500 curb ramp systems, 18,100 crosswalks, and more than 1,630 miles of sidewalk, each phase of processing required both manual and automated QC processes to ensure completeness and accuracy.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Michael Simons
Project Assignment:
Data Processing & Database Integration
Name of Firm with which associated:
Michael Baker International, Inc.
Years' experience with this Firm:
4 Years (17 Years Total)
Education: Degree(s)/Year/Specialization:
BS / 2005 / Mathematics
Active registration: Year first registered/discipline:
N/A
Other experience and qualifications relevant to the proposed Project:
Michael Simons is a talented GIT Systems Developer with GIS and SQL Server Database experience developing and managing enterprise asset management database. Michael is the lead data processing manager for all of Michael Baker's pavement data collection projects and has overseen the data reduction and final processing of over 20,000+ miles of roads just in 2022. *Resume Attached*

Michael Simons

Data Processing & Database Integration

General Qualifications

Michael Simons is a talented GIT Systems Developer with GIS and SQL Server Database experience developing and managing enterprise asset management database. Michael is the lead data processing manager for all of Michael Baker's pavement data collection projects and has overseen the data reduction and final processing of over 20,000+ miles of roads just in 2022.

Years of Experience: 17

Degrees

B.S., Mathematics,
Villanova University, 2005

Experience

Pavement Condition Survey. *City of Los Angeles, CA.* **GIS and Data Analyst.** Responsible for database management and GIS analysis of pavement condition data. Michael Baker supports the Bureau of Engineering Street Improvement Division and Bureau of Street Services in Los Angeles on a task order basis. Our local team supports the City's data collection activities so the City can make informed programming decisions and apply advanced pavement preservation techniques. Our support includes 5,000+ centerline miles of condition assessment data, conducting a pilot of the City's alley network, updating the City's Pavement Management System with the current version of PAVER, and educating City staff on how to perform similar updates in the future.

West Virginia Statewide Pavement Data Collection. *WVDOH.* **Data Processing & Integration Manager.** Responsible for the oversight of the preprocessing, post-processing and final processing of over 13,500 miles of inventory pavement condition data, imagery and HPMS data during the 2019 collection cycle. He was an integral part of developing new processing workflows to handle raw data collected by different vendors. He processed historical image data captured by another vendor and reformatted it for use in Michael Baker's Pavement Data Viewer, which was delivered to WVDOH. Built forms in MS Access using VBA to track the daily collection of data and built scripts to automate the process of aligning collected data to WVDOH's LRS using Python and SQL scripts.

Pennsylvania Turnpike Pavement Condition Inventory. *Pennsylvania Turnpike Commission.* **Data Processing & Integration Manager.** Responsible for the field data reduction of all inventories related to the automated pavement data collection that was performed along 1,200 of PTC-owned highways, including over 400 ramps. Michael Baker has been performing this work each year under a general engineering contract since 2016. This task includes the inventory and reporting of pavement distress data in accordance with PennDOT Pub 336 standard using a vehicle equipped with an LCMS, five high-def ROW cameras and high-speed inertial profiler. During this time, Michael Baker also developed a web-based Pavement Data Viewer for PTC that enables users to view detailed distress data in conjunction with downward-facing views of the pavement.

Pavement Management System, City of Camden, New Jersey. *City of Camden, NJ.* **Data Processing & Integration Manager.** Responsible for the oversight of the pre-processing, post-processing and final processing of over 200 miles of inventory pavement condition data, imagery, and profiler data. Built forms in MS Access using VBA to track the daily collection of data. Build scripts to automate the process of aligning collected data to the city's LRS using Python and SQL scripts.

Engineering Asset Database, Philadelphia, PA. *Amtrak Engineering.* **Asset Database Manager.** Responsible for managing the team of Asset Analysts that maintained Amtrak's asset database. This database fed data to Maximo for inspection tracking, electronic track charts, and ESRI ArcServer maps. He also managed the flow of data from the initial onset.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Steven Henderson
Project Assignment:
Field Data Collection Lead
Name of Firm with which associated:
Michael Baker International, Inc.
Years' experience with this Firm:
14 Years (21 Years Total)
Education: Degree(s)/Year/Specialization:
AS / 2001 / Drafting and Design Technology
Active registration: Year first registered/discipline:
N/A
Other experience and qualifications relevant to the proposed Project:
Steven Henderson has an extensive background in Mobile LiDAR and Pavement Data Collections, GIS, and CAD Drafting. As the Data Collection Manager, he is responsible for management, training, and oversight of Michael Baker's entire fleet of innovative field collection technologies, including Inertial Profiling, LCMS, Mobile LiDAR, terrestrial imagery, Static LiDAR, and SLAM LiDAR. He has been involved in field mission planning and enterprise logistics for numerous projects. His field mission planning experience includes route identification, collection tracking, route logistics and navigation, collection schedules, equipment training and certification, crew mobilization, collection validations, and Cloud-to- Cloud data transmissions. *Resume Attached*

Steven Henderson

Field Data Collection Lead

General Qualifications

Steven Henderson has an extensive background in Mobile LiDAR and Pavement Data Collections, GIS, and CAD Drafting. As the Data Collection Manager, he is responsible for management, training, and oversight of Michael Baker's entire fleet of innovative field collection technologies, including Inertial Profiling, LCMS, Mobile LiDAR, terrestrial imagery, Static LiDAR, and SLAM LiDAR. He has been involved in field mission planning and enterprise logistics for numerous projects. His field mission planning experience includes route identification, collection tracking, route logistics and navigation, collection schedules, equipment training and certification, crew mobilization, collection validations, and Cloud-to-Cloud data transmissions.

Years of Experience: 26

Degrees

A.S., Drafting and Design Technology, Hinds Community College, 2001

Licenses/Certifications

NCAT Pavement Profiler Certification

Experience

Pavement Condition Survey. City of Los Angeles, CA. Field Data Collection Lead. Steven is responsible for leading all pavement data collection activities for this project. Michael Baker supports the Bureau of Engineering Street Improvement Division and Bureau of Street Services in Los Angeles on a task order basis. Our local team supports the City's data collection activities so the City can make informed programming decisions and apply advanced pavement preservation techniques. Our support includes 5,000+ centerline miles of condition assessment data, conducting a pilot of the City's alley network, updating the City's PMS with the current version of PAVER, and educating City staff on how to perform similar updates in the future.

Mississippi Pavement Condition Survey & HPMS Data Collection. MDOT. Field Operations Lead. Steven is responsible for daily operations, supervision, and quality assurance of all data collection activities for the capture of Pavement LCMS, IRI, Friction and imagery data encompassing the entire state. In the initial two of five years of the contract, Michael Baker has provided LCMS, inertial profiler, friction testing, and panoramic image collection on 35,000 miles of state roadway, extending across seven districts and 82 counties. An additional ~40,000 miles of collections will be performed during years three to five. The inventory uses Michael Baker's innovative Network Survey Vehicles (NSV), which are equipped with an LCMS, Mosaic 51 spherical camera, inertial profiler for International Roughness Index (IRI), and four high-resolution ROW cameras.

West Virginia Statewide Pavement Data Collection. WVDOH. Field Operations Lead. Steven is responsible for daily operations and oversight of all pavement collection activities. Michael Baker is performing statewide pavement data collection, including LCMS inventory and panoramic image collection on 28,000 miles of state roadway, extending across 10 districts and 55 counties in West Virginia. The inventory is being performed using Michael Baker's mobile data collection vehicle, which is equipped with a sensor-based LCMS. All pavement data collected is being spatially referenced and aligned with the 360° spherical imagery and downward facing pavement imagery from the LCMS and provided to the client via a web-based pavement data viewer application.

Pavement Management System, Treasure Island, FL. City of Treasure Island. Field Operations Lead. Steven was responsible for daily operations, supervision, and quality assurance of all data collection activities for the capture of Pavement LCMS, IRI, Friction and imagery data encompassing the entire City. Michael Baker developed a pavement management system using cutting edge technology and a mobile van unit equipped with LCMS and inertial profiler. The pavement management system would allow the city to integrate and maintain an inventory, analyze condition data, track construction history, and conduct multi-year analyses to

guide decisions concerning pavement maintenance and rehabilitation. Michael Baker surveyed 80 lane miles of the city's streets and parking lots. PAVER 7 software was used to analyze the information for developing recommended pavement strategies, which included milling and resurfacing, reconstruction, or a combination of tasks.

Pavement Management System, Bryant, AR. *City of Bryant.* **Field Operations Lead.** Steven is responsible for daily operations, supervision, and quality assurance of all data collection activities for the capture of Pavement LCMS, IRI and imagery data encompassing the entire City. Michael Baker developed a pavement management system using cutting edge technology and a mobile collection unit that further facilitated roadway asset inventories throughout the City. The pavement management system would allow the city to integrate and maintain an inventory, analyze condition data, track construction history, and conduct multi-year analyses to guide decisions concerning pavement maintenance and rehabilitation.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Joel Wilson
Project Assignment:
Pavement Image & Data Viewer Development & Systems Integration
Name of Firm with which associated:
Michael Baker International, Inc.
Years' experience with this Firm:
7 Years (23 Years Total)
Education: Degree(s)/Year/Specialization:
N/A
Active registration: Year first registered/discipline:
N/A
Other experience and qualifications relevant to the proposed Project:
Mr. Wilson is a full-stack .NET Web Developer with over 20 years of experience in software development, design/architecture, and leadership. He is the master architect and lead developer of our signature web-based Pavement Data Viewer, which has been well received by multi-clients for its intuitive interface and robust features. Joel has served as the DBA of every Michael Baker pavement data collection project since 2017 and has steadily improved our project delivery process at each iteration. *Resume Attached*

Joel Wilson

Pavement Image & Data Viewer Development & Systems Integration

General Qualifications

Mr. Wilson is a full-stack .NET Web Developer with over 20 years of experience in software development, design/architecture, and leadership. He is the master architect and lead developer of our signature web-based Pavement Data Viewer, which has been well received by multi-clients for its intuitive interface and robust features. Joel has served as the DBA of every Michael Baker pavement data collection project since 2017 and has steadily improved our project delivery process at each iteration.

Years of Experience: 23

Experience

West Virginia Statewide Pavement Data Collection. *WVDOH.* [DBA & Application Development Support.](#) Responsible for designing and developing the web based WVDOH Data Viewer application, which includes a panoramic image viewer, a GIS map interface, a pavement image viewer, associated data attribute tables, media control, and help pages. Most notably, Joel and his team were able to integrate five (5) years of historical data (including detailed pavement condition data, imagery, and location data) that was inventoried and delivered by another vendor. Joel also developed Michael Baker's new web based Distress Selector application for this project, which allows users to rate pavement conditions from downward facing pavement imagery in a semi-automated fashion. It has since become a standard tool used on each Michael Baker project that involves automated pavement data collection. Joel has also served as the lead DBA for the project database since the project inception.

Pennsylvania Turnpike Pavement Condition Inventory. *Pennsylvania Turnpike Commission.* [DBA & Application Development Support.](#) Responsible for designing and developing the Pennsylvania Turnpike Data Viewer application, including a panoramic image viewer, a GIS map interface, a pavement image viewer, associated data attribute tables, media control, and help pages. It also included QA/QC of panoramic images, downward facing pavement images, and roadway pavement distresses. Other duties included database management and data integrity. Michael Baker performed a comprehensive pavement and roadway imagery inventory of 1,066 lane miles of mainline and extensions and 440 interchange ramps comprising approximately 258 lane miles along the Pennsylvania Turnpike. Michael Baker's services included mobile LiDAR data collection, GIS layer development, GIS application development, and pavement condition analysis.

Statewide Mobile LiDAR. *Mississippi DOT.* [Database Development Support.](#) Provided ad-hoc technical support for post installation application issues. Michael Baker completed data collection activities for the capture of Mobile LiDAR data encompassing nearly 3,000 miles of roadway.

Laser Crack Measuring System Pavement Analysis. *NJDOT.* [Database Administrator.](#) Provided application and database support. Michael Baker provided automated LCMS pavement data processing and analysis of county designated roadways. Michael Baker processed prior LCMS data for location, extent, and severity of the following roadway distresses in accordance with ASTM D6433 pavement distress standards and pavement condition index requirements: alligator cracking, block cracking, transverse cracking, longitudinal cracking, rutting, and patching. The finalized data was exported into a Paver compatible XML file for use in the County's Paver software.

Infrastructure Management Assessment Tool Application Development. *Ohio DOT.* [Database Development Support.](#) Provided technical and programming support. Michael Baker developed an infrastructure management assessment tool for the inventory and management of roadway conditions. This system focuses on the collection and management of on-system (state) and off-system (local) roadway pavement data as well as pavement core samples, highway performance monitoring system data collection, and roadway attributes.

TEC Professional Services Questionnaire

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 1

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Name: Pavement Condition Survey and PMS Update for City of Los Angeles, CA</p> <p>Location: City of Los Angeles, CA</p> <p>Owner's Contact: City of LA, Streets LA, Department of Public Works Janet Tran Pavement Management Program Manager 213-354-3066 janet.tran@lacity.org</p>	<p>Michael Baker is conducting a city-wide pavement condition survey for the City of Los Angeles (City), Department of Public Works, Bureau of Street Services (StreetsLA). Pavement data is collected utilizing Network Survey Vehicles (NSV), equipped with advanced 3D LCMS pavement scanners, high-definition ROW cameras, GPS, high-precision inertial navigation, and other remote sensing technologies to collect accurate pavement condition data and ROW data while traveling at prevailing traffic speeds. Tasks include surveying of 5,000 centerline miles of the City's pavement and updating the existing PMS. Michael Baker is performing pavement distress rating utilizing automation and manual feature extraction techniques to identify pavement distresses according to the ASTM D6433 standards while deploying multi-layer quality control and quality assurance to verify field data integrity, and the accuracy and reliability of data processing results.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
June 2025 (Estimated)	\$1 Million	92% (Prime)

PROJECT NO. 2

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Name: Pavement Management Program Update, Napa County, CA</p> <p>Location: Napa County, CA</p> <p>Owner's Contact: Napa County Mallika Ramachandran, PE, QSD/QSP, LEED AP Engineering Manager at Napa County with new position at City of Livermore 925-960-4511 mramachandran@cityoflivermore.net</p>	<p>Michael Baker collected Laser Crack Measurement System (LCMS) pavement condition data for 840 lane miles of roadway in Napa County and updated the Pavement Management Plan (PMP) in StreetSaver. The distress data were collected per ASTM D6433 and MTC StreetSaver standards. The PCI values were updated in StreetSaver. The roadway imagery was also obtained using five high definition cameras. The project included analysis of five different budget scenarios and the development of a comprehensive 10-year work plan in the StreetSaver environment. Michael Baker also provided a report detailing PCI for each road section, color-coded GIS maps based on PCI, budget analysis, and network condition prediction using StreetSaver. We also provided HD ROW imaging, which was very helpful in the process of building multi-year paving work-plans.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
December 2019	\$230,000	100% (Prime)

TEC Professional Services Questionnaire

PROJECT NO. 3		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility	
<p>Name: Pavement Management System, Camden County, NJ</p> <p>Location: Camden County, NJ</p> <p>Owner's Contact: Camden County Andrew Levecchia Camden County Director of Planning Department of Public Works 856- 566-3120 andrewl@camdencounty.com</p>	<p>Michael Baker was under contract with the Delaware Regional Valley Planning Commission (DVRPC) on behalf of Camden County to develop and implement a Pavement Management System for the County. Michael Baker performed Automated pavement condition data collection (PCI, IRI, and Rutting) on 1,100 miles of roads using LCMS technology. Michael Baker used this data to implement a new PMS (per ASTM D6433) and develop a detailed five-year pavement treatment program. Additionally, Michael Baker performed skid testing, GPR testing, and a limited coring program to include skid data as well as pavement thickness and composition data (asphalt, asphalt over concrete, asphalt over brick, and concrete into PAVER software and the county's enterprise Esri GIS platform. Michael Baker also provided license-free pavement data viewer to the county to enable web based view of the right of way imagery, downward pavement images, and pavement condition data. Michael Baker also provided pavement management support and PAVER training to the Camden County staff.</p>	
Completion Date (Actual or estimated)	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
October 2020	\$604,126	88% (Prime)

PROJECT NO. 4		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Name: Pavement Management System, City of Camden, NJ</p> <p>Location: Camden, NJ</p> <p>Owner's Contact: City of Camden John Coscia Manager Office of Project Implementation 215-238-2859 jcosciajr@dvrpc.org</p>	<p>Michael Baker was hired to implement the first pavement management system for the City of Camden. The City of Camden is a densely populated urban environment. The scope of work included automated pavement condition data collection on 180 miles of streets using LCMS per ASTM D6433. Michael Baker created pavement management sections based on pavement type and condition and divided the sections into inspection units between 1,500 to 4,000 SF per ASTM D6433. Additionally, Michael Baker performed skid testing, GPR testing, and a limited coring program and included the skid data and pavement thicknesses and composition into PAVER software. The pavement types included asphalt, asphalt over concrete, asphalt over brick, and concrete. The project also included procuring and deploying PAVER software and training the City staff. Our team extracted over 30,000 inlet, water valves, and drainage asset data and provided them on CAD plans of the City.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
February 2021	\$252,000	75% (Prime)

TEC Professional Services Questionnaire

PROJECT NO. 5		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Name: Pavement Management System, City of Indio, CA</p> <p>Location: Indio, CA</p> <p>Owner's Contact: City of Indio Juan Raya City Engineer 760-541-4225 jraya@indio.org</p>	<p>Michael Baker collected pavement condition data, LiDAR, and digital video log on approximately 450 lane miles of City-owned streets in 2016 and again in 2022. Key activities included the collection and processing of all relevant project data, and the integration of the pavement condition data/PCI into the PAVER PMS application. Additional tasks included the extraction of all sidewalks, curb ramps, and traffic signs from the mobile LiDAR and video log imagery. The specific activities and goals of the 2016 data collection cycle included updating the existing 2008 PMS; incorporating the updated PMS with Indio's Esri-based GIS system using the current version of PAVER software to update the existing PMS; delivering the software and providing training to the city staff so they can perform analysis of the pavement inventory by using off-the-shelf PMS software (PAVER); evaluating the existing street network, evaluating quantitative condition and performance measures, developing strategic goals, identifying maintenance and rehabilitation needs, and determining budget needs; and developing a multi-year capital improvement program based on the resulting maintenance and rehabilitation needs and available yearly budgets. Pavement condition data was again collected in 2022 to update the existing PMS inventory, M&R program, and budget.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2017 and November 2023	\$365,800	100% (Prime)

PROJECT NO. 6		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Name: Pavement Management System Implementation, City of Treasure Island, FL</p> <p>Location: Treasure Island, FL</p> <p>Owner's Contact: City of Treasure Island Michael Helfrich, Public Works Director 727-547-4575 mhelfrich@mytreasureisland.org</p>	<p>Michael Baker developed a pavement management system and a comprehensive 5-year work plan for the City pavement network in 2017. A pavement distress survey was performed by LCMS per ASTM D6433 standards. A logical pavement management network definition was developed in coordination with the City based on this historical information and Pinellas County GIS data. Once the pavement inventory and condition data were collected and processed, it was integrated into a newly implemented PAVER™ database, where initial models, including deterioration and M&R decision trees, were developed. These models were customized to represent actual conditions and treatment scenarios historically used for network improvement that fed into a new 5-year pavement work program. Our team also provided onsite training at the City on the PAVER™ application.</p> <p>Michael Baker was again hired in 2022 to resurvey distress of all the City streets with Michael Baker's LCMS system, update the street PCI records to accurately reflect the City's street maintenance since the 2017 PCI update, update the City's street pavement conditions inventory spreadsheet, and used PAVER 7 data analysis modules to identify the routine / localized maintenance needs and costs, 5-Year capital project needs and costs, and 5-Year prioritized project list.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
June 2017 and September 2022	\$132,780	100% (Prime)

TEC Professional Services Questionnaire

PROJECT NO. 7		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Name: Statewide Pavement Data Collection, West Virginia</p> <p>Location: Statewide, West Virginia</p> <p>Owner's Contact: West Virginia Department of Highways Michael Troyan, PE Asset/Pavement Management 304-558-3505 Michael.O.Troyan@wv.gov</p>	<p>Michael Baker performed the statewide pavement condition data collection for WVDOT-DOH over a five-year contract. This inventory includes a varied amount of mileage each year, with the most being 13,500 miles in 2019. This inventory included the capture of ROW imagery, 3D downward facing imagery, IRI data, and pavement distresses (transverse, longitudinal, and alligator cracking, as well as rutting and patching). Michael Baker developed a custom web-based pavement distress extraction tool for manually classifying pavement distress information using the images and distress delineation captured by the data collection vehicles. This provides added value to the client since this unified tool allows extractors to see not only the pavement images, but the corresponding forward images and geoposition of the data collection vehicle on a map. Collected data was delivered to DOH as a unified single delivery type that incorporated into their PMS and used to support the federal HPMS requirements.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
<p>March 2024 (Estimated)</p>	<p>\$6.3 Million</p>	<p>90% (Prime)</p>

PROJECT NO. 8		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Name: Pavement Condition Survey, Mississippi</p> <p>Location: Statewide, Mississippi</p> <p>Owner's Contact: Mississippi Department of Transportation Cindy Smith, PE, State Pavement Engineer 601-359-7648 cjsmith@mdot.ms.gov</p>	<p>Michael Baker is providing the MDOT with surveying and engineering services for pavement condition, roadway inventory, and highway performance monitoring system (HPMS) data collection on state maintained highways. Michael Baker is providing a Line Crack Measurement System (LCMS), inertial profiler inventory and panoramic image collection on 35,000 miles of state roadway, extending across seven districts and 82 counties for MDOT's four year program.</p> <p>Additionally, we are performing Skid/Friction testing on 14,000+ state-owned roads in 2022. Michael Baker leveraged ArcGIS online for mission planning and route-based tracking to assist with field crew coordination and provide real-time vehicle tracking. After the roadway data was collected, it is post-processed using automated pavement distress identification software that measures pavement crack width, length, depth, and orientation with millimeter accuracy. As part of this project, Michael Baker successfully introduced two new roadway data collection technologies that enable the client to collect vast amounts of objective roadway condition and safety data that otherwise would not have been collected.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
<p>December 2024 (Estimated)</p>	<p>\$5.7 Million</p>	<p>80% (Prime)</p>

TEC Professional Services Questionnaire

PROJECT NO. 9		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Name: Citywide Pavement Inspection and Roadway Repair Program, City of Turlock, CA</p> <p>Location: City of Turlock, CA</p> <p>Owner's Contact: City of Turlock Fred Pezeshk, PE Roads Program Manager 209-668-5520 FPezeshk@turlock.ca.us</p>	<p>As part of the Turlock Roads Repair Program (Project 2021-039), Michael Baker International, Inc. (MBI) performed a citywide collection of Light Detection and Ranging (LiDAR) and Laser Crack Measurement System (LCMS) data on 508 lane miles of City streets. The program included the capture of spherical imagery, 3D downward facing imagery, and pavement distresses per MTC StreetSaver standard. The tasks included pavement distress survey in accordance with StreetSaver guidelines for approximately 508 lane miles of the City of Turlock roadways using LCMS, PCI calculations, and updating StreetSaver database with updated network condition. MBI also updated StreetSaver unit costs and decision trees per City's recommendation, performed budget analysis, and developed 5- and 10-year Capital Improvement Programs (CIP), including project prioritization, selection, and cost estimate. Additionally, Michael Baker deployed its proven Mobile LiDAR equipment to scan the entire city to support all engineering work over the next five years. Leveraging the efficiency of the equipment, all roadways were completely captured in a short eight day period. LiDAR data was tied to ground control to support survey grade measurements and topographic mapping for engineering designs, while Michael Baker's 3D web-viewer (LiDARData.net) enabled real-time, license-free access to all survey data and imagery to eliminate costly site visits and manual measurements.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
December 2022	\$897,292 (\$2.3 Million Total Contract Value)	90% (Prime)

PROJECT NO. 10		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Name: 2021 Pavement Data Collection</p> <p>Location: City of Lincoln, NE</p> <p>Owner's Contact: City of Lincoln Transportation and Utilities Erika Nunes Senior Engineer, Asset Management and Performance ENunes@lincoln.ne.gov</p>	<p>Michael Baker International (MBI) performed pavement condition data collection using LCMS on 2,650 lane miles of City-owned street network consisting of the arterial, collector, and residential streets to calculate Pavement Condition Index (PCI), the extent of Alkali-Silica Reaction (ASR), and International Roughness Index (IRI) complete with GPS coordinates and high-resolution digital images for each road in accordance with ASTM D6433-20, StreetSaver pavement distress rating guidelines, and ASTM E950. The tasks also included updating the City's pavement inventory, importing inspection data, updating the City's current PCI numbers in StreetSaver (11,000 street sections), updating the pavement performance models and deterioration calculations based on the historical and newly collected data. MBI submitted a final report with a network condition summary including PCI and IRI reported per segment, historical comparison, and the number of miles and percentage of roads in each PCI condition category (Good, Satisfactory, Fair, Poor, Very Poor, Serious, Failed) for the City's pavement network, as well as for different functional classifications (e.g., arterial, collector, and residential). The delivery also included a web-based pavement data viewer allowing the City staff to view the synchronized high-resolution 360-degree ROW images, downward-facing pavement views, ROW images, and detailed pavement distress data compatible with the City's current MTC StreetSaver system.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
August 2022	\$335,864	80% (Prime)

TEC Professional Services Questionnaire

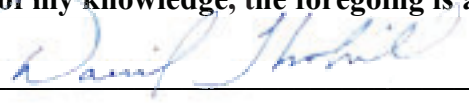
M. List all prior and/or on-going litigation between Firm and Jefferson Parish. Please attach additional pages if necessary.

Parties:		Status/Result of Case:
Plaintiff:	Defendant:	
1. N/A		
2.		
3.		
4.		

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project.

*See attached for a summary of Michael Baker International's qualifications, capacity, and experience relevant to the requirements of Notice SOQ 24-001.

O. To the best of my knowledge, the foregoing is an accurate statement of facts.

Signature:  Print Name: Daniel Thornhill
 Title: Office Executive Date: 2/8/2024

Qualifications and Experience

Michael Baker is a full-service Civil Engineering and Technology consulting firm that provides engineering, geospatial, planning, architectural, environmental, construction, program management, and information technology services. Headquartered in Pittsburgh, Pennsylvania, we have more than 80 offices nationwide, including a well-established location in the state of Louisiana; our Baton Rouge, LA office is conveniently located one hour from the Jefferson Parish. Currently, we employ over 3,900 personnel, of which more than 250 are dedicated geospatial and infrastructure asset management experts who deliver innovative solutions to better the very areas where we live and work. Our firm is nationally ranked in the Top 25 transportation engineering consulting firms, according to *Engineering News-Record*, which is a reflection of our dedicated team who continually looks for opportunities to integrate new technology and innovative solutions that allow clients to capitalize on pavement and roadway asset management programs.

Michael Baker has a full-service Pavement and Transportation Infrastructure Management team capable of performing all aspects of pavement and infrastructure condition management for municipal and state Departments of Transportation (DOT). Michael Baker is one of the foremost experts in the application of remote sensing technology for cataloging information on our nation's critical infrastructure. Our innovative solutions collect exacting information not only on pavement, but also roadways, utilities, ADA/pedestrian facilities, and other assets to support planning, engineering design, and smart vehicle technology. Michael Baker leads the profession for integration of technology, and is always mindful of quality, our reputation, and our client's expectations.

Pavement Management Services

Michael Baker has provided pavement management services nationally for over three decades and has performed mobile data collections since patenting GPS mapping technology in the early 1990s through our GeoLink® GPS/GIS mapping system. We began providing statewide asset and roadway characteristics inventories (RCI) utilizing mobile imagery and photolog solutions in 2004. In 2014 we recognized opportunities to address deficiencies in available pavement collection methods with newer technologies and innovative processing solutions and expanded our suite of pavement solutions to include our first, fully integrated LCMS pavement collection system. Since that time, we have steadily grown our service offerings from a regional provider to a national, full-service integrator with a fleet of pavement inventory vehicles that now offer LCMS-2 capability and truly scalable solutions.

Our field collection team, technical managers, and each Network Survey Vehicle (NSV) used on the project to perform pavement data collection are certified by the NCAT facility at Auburn University, and our Pavement Scientist and equipment are also certified for StreetSaver. These teams are responsible for conducting the inventory and will adhere to applicable AASHTO standards as is customary for the majority of our projects. Our processing teams are responsible for performing semi-automated production and will leverage Michael Baker's innovative web-based Distress Selector application to augment the extracted pavement condition and perform Quality Control in compliance with both the FHWA-approved Data Quality Management Plan (DQMP) and Michael Baker's Project Specific Quality Management Plan (PSQMP).

Michael Baker has been providing large-scale pavement condition surveys for the past seven years including a five-year program for the Pennsylvania Turnpike Commission (PTC), a five-year program for the West Virginia Department of Transportation's Division of Highways (WVDOT-DOH), a multi-year program for the New Jersey Department of Transportation (NJDOT), and a recently initiated five-year program for the Mississippi Department of Transportation (MDOT). Michael Baker has also developed or updated PMS for many cities and counties using multiple software such as Paver, StreetSaver, CityWorks, Agile Assets, ICON and dTIMS. We have also provided training to authorities on how to use and update PMS databases.

Besides our recent selection to provide a pavement condition survey for the City of Los Angeles, we have also conducted municipal pavement condition surveys and pavement management system development/updates for several other cities, counties, and municipalities. All of this was possible as a result of our team's scalable capacity, effective teaming partnerships, our company's continuing investments in technology, and unwavering commitment to our clients with local office service.

Capacity

Michael Baker has assembled a responsive and qualified team who has earned the experience necessary to address all leadership and technical requirements of this project. We know that we can exceed the expectations of Jefferson Parish because of our team's capacity, local knowledge, and the right resources to meet all critical objectives related to data collection, pavement condition assessment, and pavement management system updates and planning. As detailed in Sections K and L of the TEC Professional Services Questionnaire, our proposed team members have consistently demonstrated their abilities to perform tasks and complete deliverables that directly align with Jefferson Parish requirements for their pavement assessment and management needs. The proposed key staff has worked together successfully on several pavement condition data collection and pavement management system projects, recently collecting 30,000 miles of pavement data across Mississippi, West Virginia, & New Jersey. The proposed staff has a complete understanding of the processes to assess the pavement condition per ASTM D6433 and MTC StreetSaver standards and has developed customized applications to process large amounts of data cost-effectively and deliver projects on time and within budget.

With more than 250 dedicated geospatial and infrastructure asset management experts throughout the company, we are confident that we have more than enough capacity complete the project tasks on time and within budget. Additionally, Michael Baker has a vast pool of over 30 trained pavement rating technicians across the company that are readily available and familiar with various pavement distress rating protocols, including MTC StreetSaver.

Proposed Key Staff Availability

Proposed Staff	Role	Availability for this project
Daniel Thornhill	Principal in Charge / Professional in Charge	20%
Vahid Ganji	Project Manager	40%
Nathan Kebede	Quality Manager	35%
Jibreel Rana	Pavement Distress Rating Task Lead	55%
Kenneth Contrisciane	Data Processing & GIS Task Lead	50%
Aaron Morris	Data Collection Manager	40%
Michael Simons	Data Processing & Database Integration	45%
Steven Henderson	Field Data Collection Lead	50%
Joel Wilson	Pavement Image & Data Viewer Development	30%

Equipment & Technology

Our fleet of proven Network Survey Vehicles (NSV) utilize the most-advanced 3D, GPS, and remote sensing technologies to collect accurate and repeatable pavement and roadway asset management data. Each NSV is equipped with four 9MP high-definition right-of-way (ROW) cameras, 75MP Mosaic Spherical 360-degree camera, LCMS 3D pavement surface scanners, Gocator line-laser profilers, Distance Measuring Instruments (DMI), Differential-GPS, and an inertial measurement unit (IMU). NSVs are AASHTO R-56 certified. The NSVs are fully integrated and capture synchronized data streams for all sensors. The four 9MP area-scan ROW cameras integrated on our NSVs are calibrated for scale and enable us to perform asset management data extraction with sub-meter accuracy.

The fully integrated survey system is operated through a single command and control center accessible from the passenger seat



WVDOT Pavement Data Viewer

Routes: 06200520000EB 1.09%

2021 - 1.09% (0.000 to 1.300) 05/12/2021

Beg/End Pkts	Length	Direction	SurfaceType	IRI Mean	IRI	IRI	PSI	IRI Max	IRI Mean Prev	Rut Mean	Rut Max	Fault	J
0.600 0.600	0.100	EB	CON	194.2	220.6	167.8	2.255	594.8	148.2	-1.00	-1.00	-1	
0.700 0.800	0.100	EB	ASP	141.6	146.6	136.5	2.798	442.9	175.2	0.05	0.08	-1	
0.800 0.900	0.100	EB	ASP	81.3	63.2	99.3	3.583	158.9	82.4	0.04	0.08	-1	
0.900 1.000	0.100	EB	ASP	83.7	95.0	72.4	3.548	170.5	116.8	0.03	0.07	-1	
1.000 1.100	0.100	EB	ASP	440.5	373.1	507.9	0.822	1115.1	449.9	0.04	0.03	-1	
1.100 1.200	0.100	EB	ASP	222.6	227.7	217.5	2.007	897.2	231.1	0.12	0.24	-1	
1.200 1.300	0.100	EB	ASP	114.8	120.1	109.5	3.123	237.8	107.2	0.10	0.19	-1	

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Additional Information